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Studied was the effect of art education on productive changes in perceptual, cognitive, and attitudinal styles, and on the art aptitudes of disadvantaged youth. The study examined the assumption implicit in many school programs that art education is somehow beneficial to poor and minority group students. The research design divided teachers of seventh-grade art classes into experimental and control groups. Both groups had pre-experiment orientation sessions and an opportunity to develop a "breadth and depth semester plan." Experimental group teachers were given information on the nature of disadvantaged learners and the structure of art as well as an experimental text and certain art materials. The salient finding of the study was that the art teacher, not art per se, is the key to bringing about behavioral changes in disadvantaged students. (NH)

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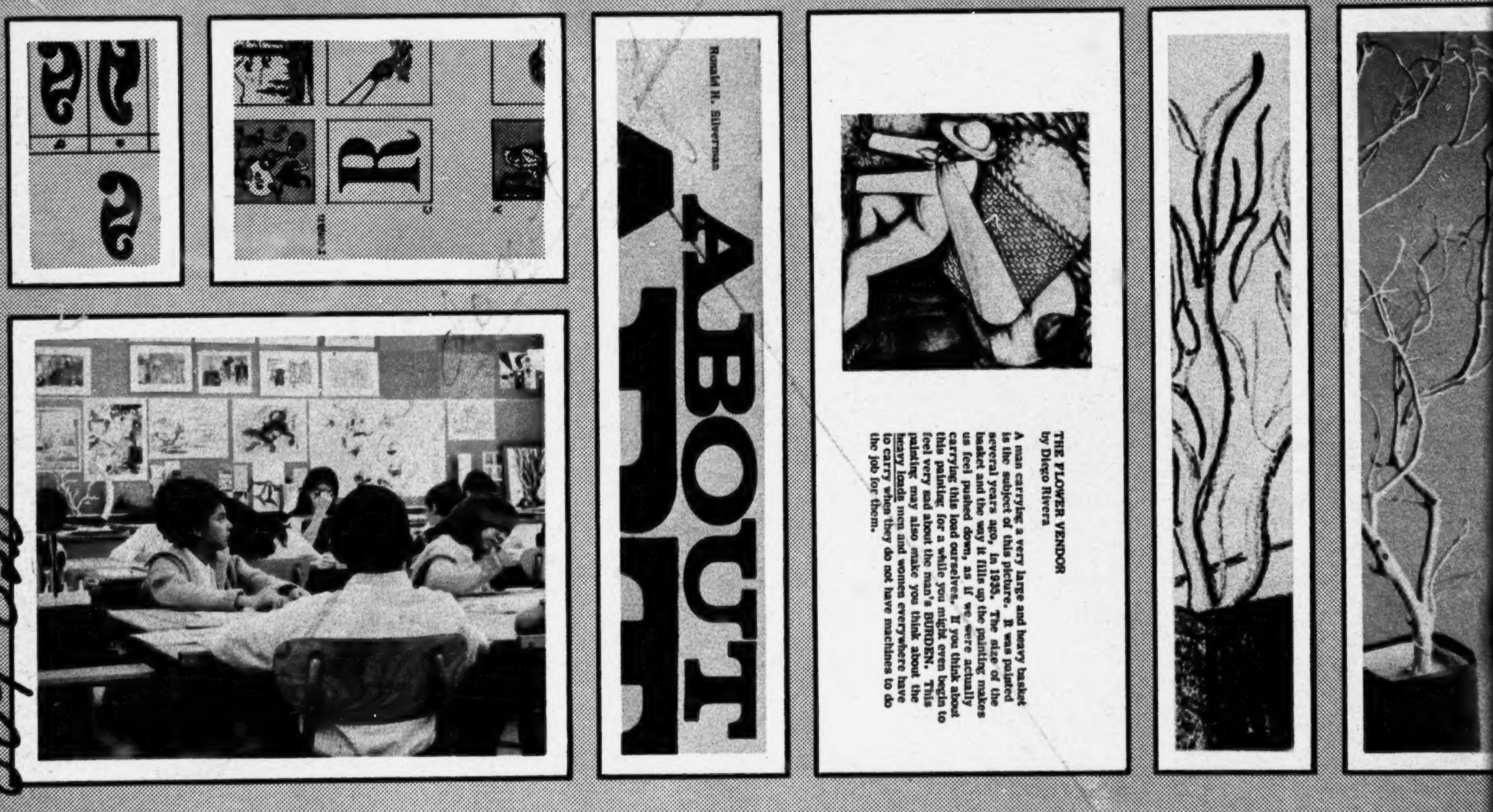
DEVELOPING AND EVALUATING ART CURRICULA SPECIFICALLY DESIGNED FOR DISADVANTAGED YOUTH

Ronald H. Silverman *CALIFORNIA STATE COLLEGE, LOS ANGELES*
Ralph Hoepfner *UNIVERSITY of SOUTHERN CALIFORNIA*



THE FLOWER VENDOR
by Diego Rivera

A man carrying a very large and heavy basket is the subject of this picture. It was painted several years ago, in 1935. The size of the basket and the way it fills up the painting makes us feel pushed down, as if we were actually carrying this load ourselves. If you think about this painting for a while you might even begin to feel very sad about the man's BURDEN. This painting may also make you think about the heavy loads men and women everywhere have to carry when they do not have machines to do the job for them.

UD 009 020

FINAL REPORT
Project Number 6-1657
Contract Number OEC-4-6-061657-1641

MARCH 1969

U.S. Department of Health, Education, and Welfare
Office of Education - Bureau of Research

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Final Report

Project No. 6-1657
Contract No. OEC-4-6-061657-1641

DEVELOPING AND EVALUATING ART CURRICULA SPECIFICALLY DESIGNED FOR DISADVANTAGED YOUTH

RONALD H. SILVERMAN
California State College, Los Angeles

RALPH HOEPFNER
University of Southern California

UD 009 020

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Los Angeles, California

March 1969

PREFACE

A great many school programs for the disadvantaged have been initiated which include art experiences as an important component. From this quantity of projects concerned with art and the disadvantaged, it would appear that art education is *assumed* to somehow benefit both economically impoverished students and those who are members of sub cultures with mores and folkways that are in conflict with middle-class norms which prevail in the American school. This study examines this assumption by attempting to answer the following question: Can art education as it is *typically provided* in our schools make a significant difference in altering the intellectual and social behavior of disadvantaged learners?

A concomitant question that also needs to be answered is: To what extent will art education practices effect important behaviors when reasonable alterations in art curricula and teaching media are made that reflect an understanding of the nature and needs of disadvantaged learners? Only the students in our experimental groups experienced such alterations. Changes were planned which were feasible in terms of scope and cost so they could reasonably be adopted within existing programs if they proved to be effective.

In our attempt to answer these questions, considerable effort and expense were required to: organize and establish appropriate experimental and control group situations, identify or develop relevant evaluative instruments, and acquire and produce special curriculum materials. Therefore, it was decided to take advantage of the experimental milieu which was established and also attempt to examine other important issues such as: the relative efficacy of exploratory versus depth curricula, and the magnitude of the relationship between teacher experience and competence variables and changes in student behaviors. This report and its appendices provide a thorough exposition of the conditions under which (1) these issues were dealt with and (2) attempts were made to answer the foregoing questions.

Launching and carrying out a controlled experiment involving almost thirty teachers and their classes over a full school year proved to be a very complex enterprise, one that required the consultation and services of a great many people. Most of those consulted or providing services for this study are cited either in the main body of the report or in one of its appendices. There are, however, individuals who are not so cited, who must also be recognized because of their important contributions.

This investigation grew out of the Seminar for Curriculum Development and Research in Art Education directed by Dr. Edward Mattil held at the Pennsylvania State University during September 1965. In its embryonic stages, it received the scrutiny and sage advice of Dr. Elliot Eisner of Stanford University and Dr. William Michael of the University of Southern California. Material assistance in designing evaluative instruments and our experimental text book was provided by Professor Lee Wexler of California State College, Los Angeles. Secretarial chores were handled conscientiously and with great skill by Patsy Thompson and Margaret Thomlinson.

Evaluating this study proved to be its most complex and resistant feature. It could not have been accomplished without the involvement of a perceptive, knowledgeable, and skillful expert in psychological measurements. Fortunately, our project evaluator, Dr. Ralph Hoepfner, Assistant Director of the Aptitutdes Research Project at the University of Southern California, possesses these qualities. He is responsible for organizing our test batteries and submitting our data to the appropriate analyses, and for writing chapters three and four of this report. His efforts were complemented by our very efficient and productive research assistant, Moana Hendricks.

Finally, without the cooperation and efforts of many art teachers working in school districts in Los Angeles and Riverside Counties, this experiment could never have been conducted. The school districts and art teachers participating in this study include the following.

Compton--Tom Fraser; Corona--Robert Gilbert; Duarte--Frances Mincy and James Sheehan; Glendale--Ethel Hughes; Jurupa--Ruth Hayes; Lawndale--Patricia Graves, Raymond Morales, and Ruth Welsh; Little Lake --Wilbert Smith; Long Beach--Judith Taylor; Los Angeles City--Bertil Eklund, Michael Harp, Sherry Petrie, and Gene Rosikiewicz; Montebello --Linda Cunningham and Jewel Lassiter; Paramount--Isadore Levine and Clarence Stevens; Pasadena--Mamie Grant and Loren Shirar; Rowland--Rose Cotton, Agnita Mueller, and Michael Sanders; Santa Monica--Pat Golden; and Torrance--Mary Jane Murdock.

Ronald H. Silverman
Project Director
Los Angeles, California
March 1969

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CHAPTER I. RATIONALE

This study was undertaken as an initial investigation of how and to what extent art education practices can be planned to deal specifically with the psychological and educational needs of disadvantaged learners. Its basic underlying assumption is that in order to effect changes in student behaviors, learning experiences must be provided which reflect a thorough understanding of the socio-psychological characteristics associated with the learner's cultural milieu.

I. DEFINING AND ASSUMING

Today, terms such as "art education" and "culturally disadvantaged" are employed widely but frequently without precision. To reduce ambiguity about their meaning in relation to this study, the following definitions and assumptions are offered.

Art education. In this investigation, art education was not defined as the process whereby learners are provided with therapeutic or expressive outlets, or whereby entertainment is provided for those who are deprived of opportunities for high culture. It was, rather, viewed as the discipline which seeks to develop abilities for identifying, comprehending, evaluating, and producing those ideas and abstractions which are germane to visual-aesthetic realms of experience. In short-hand terms, art education was conceived as the process whereby visual-aesthetic literacy is developed.

Culturally disadvantaged. To develop visual-aesthetic literacy, it is assumed the art teacher needs to know both his subject and the nature of the culture which has spawned the students he is hired to teach. Knowing about the culture of one's students becomes a complex task when culture is defined as it was for this study: Culture refers to the aggregate of the social, ethical, intellectual, artistic, governmental, and industrial attainments characteristic of a group by which it can be distinguished from or compared with other groups; this would include ideas, concepts, usages, institutions, associations, and material objects (12: 147).

The culture of disadvantaged students differs markedly from the culture of advantaged students. These differences manifest themselves in our schools because the school is typically an institution which is characteristic of the dominant cultural group in our country, and it was established specifically to educate the progeny of this group. The implications and consequences of this situation are examined in the following section devoted to defining "education."

A social definition of education. A simple, psychologically based, definition of education would view it as the process for changing behavior. But "culture" is a social concept and, therefore, education, within this context, might best be defined anthropologically as the means of transmitting the culture from one generation to the next, or sociologically: education being conceived as the social process whereby people are subjected to the influence of a selected and controlled environment, such as the school, so that they may attain social competence and optimum individual development (12:191).

It is when we begin to think of the school as a "controlled environment" that the problem of culturally different learners emerges. Since the school is the institution designed specifically to transmit the culture, and is financed and staffed to achieve this purpose, we must ask: which culture is to be transmitted? Historically, the answer has been the culture of the dominant social group in the United States. Members of minority or sub cultural groups have had to conform to the cultural norms of the school or they have dropped out or been forced out because their behavioral patterns are inappropriate for functioning within the school environment. Today, in this most affluent of all nations, estimates range from 700,000 to 1,000,000 of our youth leaving school each year prior to their graduation from high school (27:153).

Melting pot or cultural pluralism. The existence of this research project assumes a readiness to deal with the inequities foisted upon sub cultures by the domination of our schools by the majority culture. A counter argument to this contention would be that that is the primary role of the school: to sublimate and alter cultural differences in order to homogenize and thus, solidify our nation. This interpretation reflects a "melting-pot" view of our country which does not cohere with the demographic facts; note the following figures:

As of the 1960 census, over 34 million people, 19 per cent of the population, in this nation were foreign born or had one or more parents who were foreign born; demographers classify this group as "foreign stock." New York had over 6 million so classified, California over 4 million, Massachusetts, New Jersey, Illinois, and Pennsylvania over 2 million, and over 1 million foreign stock have been identified in Michigan, Ohio, and Texas (33:448). Foreign stock implies ethnic differences which would be reflected in the behavior of the progeny of the foreign born attending our schools.

In addition, one must also include members of racial and religious minorities whose differences contribute to cultural manifestations which deviate from those exhibited by members of the dominant culture. This nation is 88.6 per cent white, there are 19 million Negroes, over 1/2 million Indians, 3/4 million of Oriental extraction, and approximately 400,000 others (33:440). Sixty-six per cent are Protestant, 26 per cent Roman Catholic, 3 per cent Jewish, 3 per cent have no religion, and 2 per cent have some other religion or did not report any religion (33:453).

To ethnic, racial, and religious differences can be added differences in social status; i.e., one's position in the social structure. Which leads us to the consideration of yet another sociological concept: *social stratification,* the separation of a group or society into social classes based upon wealth, education, occupation, and other factors which make up the prestige hierarchy of a society. Thus, people by virtue of their occupation, income, education, place of residence, and relative power in a community can be classified as members of the lower, middle, or upper class.

The factors which affect one's social status also contribute to group differences reflected in behavior patterns exhibited in our schools. Some relevant demographic facts related to social class factors would be:

As of 1964, the median family income in this country was $6,600; for nonwhite families it was $3,500. 8.4 million families, 30,000,000 people, earned less than $3,000 per year. Thus, almost 1/5 of the nation in 1964 could be assigned to lower social strata by virtue of income alone (32:100-101).

To these massive differences in ethnicity, race, religion, and social status can be added rural-urban variations. They all add up to a differentiated America wherein the melting-pot concept hardly seems viable. America is clearly not a homogeneous society. It is made up of diverse groups which maintain many of the ideas, institutions, associations, etc., that tend to distinguish one from the other. Therefore, the notion of *cultural pluralism* would appear to be more realistic because of the obvious cultural diversity that characterizes this nation.

Acknowledging cultural differences. Assuming that we do indeed live within a nation characterized by cultural pluralism can lead us to looking at the school as an institution whereby cultural differences are acknowledged and students are encouraged to understand and appreciate the contribution each group has made and is making toward the maintenance and improvement of American and world society. In addition, our schools must recognize that many students may be educationally disadvantaged as a consequence of their particular ethnic, racial, or class affiliations. Such acquired characteristics as negative attitudes toward intellectual involvement, a poorly developed self concept, and deficiencies in basic perceptual experiences also need to be acknowledged and dealt with in our schools.

To accomplish such purposes, it is assumed that the school needs to be responsive to cultural deviations; curricula must reflect a concern for cultural diversity, and teachers, who are primarily members of the dominant group or have acquired the patterns of thought and behavior exhibited by the majority, need to understand something of how members of sub cultures typically act and react in relation to matters which are germane to school and schooling. When cultural differences are considered, however, we must not focus upon those traits which have been exploited for maintaining the dominant group in power. Through stereotyping and dwelling upon negative characteristics, members of minority groups have often been denied equitable opportunities to acquire the prerequisites for social mobility: education, wealth, and political power.

This is the thesis undergirding the report of the National Advisory Commission which investigated civil disorders. They found that it was not the characteristics of the black or poor which were the causes of insurrection, but, rather, the attitudes and behavior of the white majority, namely, white racism, which constrained the impoverished and the black to vent their hostility and frustration (21). Therefore, the major problem lies with the majority culture and not with cultural minorities. And, when the majority culture faces this issue squarely and through its schools educates toward the removal of color bars, and the extension of political democracy, we will see a healthy and unified America wherein positive manifestations of cultural diversity are nourished and negative ones--bigotry and prejudice--are overcome.

This will be no easy task for, in the words of Carey McWilliams who documents the subjugation of minority groups in his text *Brothers Under the Skin:*

> Profit or advantage is the motive force of group discrimination. The conflict between groups, as the conflict between individuals, is not rooted in nature, it is not due to a difference in race or culture. On the contrary, it is an aspect of the competitive social order in which we live. There is doubtless real social value in competition but to be valuable the competition must be real, not faked. Only hypocrites and crooks stack a deck of cards and then call upon their rivals to "compete." Competition can only have value where there is a real equality of opportunity, in a society in which cooperation is the norm and in which privileged hierarchies no longer have the power to create a sense of felt disadvantage in any group (25:345-46).

It is mainly in the effort to overcome this "felt disadvantage" that our attention was directed toward culturally different learners.

II. THE PROBLEM AND ITS MAGNITUDE

In recent years, educational institutions have become increasingly concerned with those learners who have been deprived of an opportunity to acquire the knowledge, attitudes, and skills which make it possible to benefit from educational opportunities as they are typically provided. These students are products chiefly of two types of environments: One, the economically impoverished, characteristic of slum conditions, wherein the child's experiential background is so limited that he lacks the perceptual maturity on which subsequent formal schooling is based; the other, the culturally discontinuous, characteristic of some racial and ethnic minorities, wherein such acquired habits as language usage and/or attitudes toward the value of education are antithetical to the ways of the school culture.

The demographic facts. The magnitude of the problem generated by poverty and cultural discontinuity is reflected in the following figures. Between 30 and 35 million Americans live at or below subsistence levels as outlined by the Office of Economic Opportunity (20:1):

Family size Persons	Non-farm	Farm
2	$1,990	$1,390
5	3,685	2,588
7	4,635	3,245
10	6,135	4,295

In 1966, about 11.9 per cent of the nation's whites and 40.6 of its non-whites were numbered among the poor (21:14).

The effects of so much poverty with its obvious racial overtones are reflected in these figures: 15,000,000 of the poor are children and youth (26); as of 1964, 70 per cent of whites but only 42 per cent of Negroes were high school graduates (32:9); and one-third of the students in our fourteen largest cities can be classified as disadvantaged and as potential dropouts (28:1).

Related to these figures is the 1961 prediction by James Conant that "social dynamite" was building up in our largest cities in the form of unemployed, out-of-school youth. He reported that in the slum area of one large city, 63 per cent of boys between ages 16 and 21 who dropped out of school were unemployed, and 48 per cent of those having graduated from high school were unemployed (7:34). Unfortunately, Conant's prediction was all too accurate. Social dynamite has subsequently exploded in New York, Chicago, Atlanta, Watts, San Francisco, Detroit, Newark and elsewhere.

The general importance of this study. These data clearly point to the absolute necessity for our educational establishment to direct its attention toward the reduction and eventual elimination of poverty, racial-ethnic prejudice, and the anti-education effects of these two conditions. If the study of the *visual arts* is considered to be a vital branch of education, it needs to be demonstrated how such study can also contribute in developing the learning and achievement potentials of those who have been educationally disadvantaged by their environments.

The central hypothesis. Descriptions of the personality structure of the disadvantaged indicate an affinity for the concrete and a distrust of the theoretical and abstract. Since art experiences within our schools are usually based upon the utilization of concrete materials, it may be hypothesized that art education can have an important influence upon perceptual-cognitive and attitudinal behaviors which predispose disadvantaged youth to success or failure in our schools. This should occur when alterations in curricula and methodology are based upon the disadvantaged learner's interest in the concrete and are specifically structured to deal with his problems.

It was the purpose of this study to develop and test this hypothesis by developing and evaluating art curricula specifically designed for disadvantaged youth.

Additional values of this study. The instructional methods, curricular innovations, and evaluation techniques designed to test this central hypothesis should have an impact upon art teachers working with disadvantaged learners; teachers of advantaged students will also find worthwhile the various facets of information generated by this study.

Of special importance, however, is the contribution this study should make to preparing art teachers for working with the disadvantaged. Many teaching candidates from urban colleges and universities often do their student teaching within schools located in depressed areas and may well start their careers in such schools. Therefore, it is imperative that they know as much as possible about how art education processes can be employed to deal with the needs of the disadvantaged. Such information, to date, appears to be sparse if not non-existent.

Student teachers who will eventually teach in middle class areas must also know about the culturally different because it will be their task to educate toward overcoming the animosities generated and perpetuated by *mass society*.

The concept of mass society implies a shrinking of the differences that separate society which is characteristic of advanced industrial nations. In such societies, contrasts between income and education are minimized and the middle class is very large, therefore, variations in behavior can no longer be attributed to class differences or class conflicts. Behavior is attributed instead to the unique characteristics of mass society itself, rather than to class or cultural affiliation (31:299).

Because of this lack of connection with class or cultural groups, mass society can be characterized as a society wherein individuals often have few meaningful and strong bonds with each other. They are *isolated* and thus constitute little more than an aggregate of persons. This isolation frequently manifests itself in feelings of frustration, hostility, and alienation. Unfortunately, alienated and lonely persons are easy prey for totalitarian and authoritarian movements. They view such movements as a form of pseudo-community. They can be found supporting groups opposed to fluoridation of water, school bond issues, and urban renewal; they support McCarthyism and other forms of authoritarian activity. One of the chief combatants of these negative outcomes of mass society is the voluntary organization through which the sense of powerlessness can be reduced. The organization serves as a mediating force between the individual and the state and thereby tends to reduce the development of alienation (31:299).

Another force which appears to mitigate against the reactionary responses generated by mass society is formal education. A recent Harris Survey indicates that over the five year period 1963-68 there has been but slight change in the level of negative stereotyping about Negroes engaged in by many whites (16). But this survey also indicates that one's level of educational attainment does make a difference; e.g., in 1968, of the whites polled, 60 per cent of those with an 8th grade or less education believed that Negroes had less native intelligence than whites, but only 30 per cent of those with a college education shared this belief.

Mass society and its manifestations are worth mentioning in the context of this study because what we are really concerned with is making the school responsive to current conditions in our society. And certainly, the progeny of the alienated and frustrated also walk through the school room door. Their nature and needs as they affect school and schooling must also be recognized and dealt with, and they must be taught about the significant contributions to American and world culture being made by those who share the heritage of our cultural minorities.

Related literature. Although art has been utilized in several of the major programs launched to combat the problems of the disadvantaged--namely, the Higher Horizon program and the Great Cities Program for School Improvement--it would appear that curricula and methodology have not been devised to deal with specific problems (22). This apparently is also the case with the art programs listed by the Center for Urban Studies at the University of Chicago in a recent publication dealing with the uses of art in compensatory education projects (34). Art experiences have been provided without significant shifts in emphasis or approach. This is the case with many of the programs described at a 1966 conference which considered the role of the arts in dealing with the problems of the poor (3). Evidently, because of their essentially non-verbal nature, art activities are conceived as being "culture-free" experiences; adjustments are not needed because such experiences are appropriate for all groups.

Typical of this approach is the study recently concluded at the Pasadena Art Museum sponsored by the Rosenberg Foundation (9). Disadvantaged children were brought to the Museum to participate with others in the Children's Art Program which can be characterized as being free-expression, material-exploration oriented. Significant changes in behavior were limited to developing a greater readiness to cope with problems than the non-attending control group. These changes, however, could well be a function of being selected as part of a group which participated in a special program.

Another study, wherein specific altering of curricula and teaching methods were not of paramount importance, was the pilot project directed by Doris Barclay (1). She provided after school art activities for a select group of disadvantaged Mexican-American children from East Los Angeles. She sought to examine changes in their attitudes as a consequence of their participation in art activities as measured by the *California Test of Personality* and the *Children's Personality Questionnaire*. Although results indicated changes between pre and post test scores, no test of significance was applied, and results were considered somewhat equivocal because of the limited size of her study group and the lack of experimental controls (1:12).

In their descriptive study, Pete Carr and Robert Clements examined the relationship between quality of art work and fantasy or reality motivations, scrap and expensive art materials, and socio-economic status (5). The four sixth grade classes they utilized yielded the following results: expensive materials resulted in greater art quality being produced by disadvantaged students, advantaged student performance was not affected by either scrap or expensive materials; fantasy motivations tended to produce greater art quality; and disadvantaged students produced work of lower art quality, craftsmanship, and originality.

These results were achieved as a consequence of providing the same motivations and materials for both advantaged and disadvantaged groups. While the review of the literature accompanying their report did allude to social class differences regarding fantasy or reality motivations, and scrap or expensive material utilization, Carr and Clements did not attempt to alter through art experiences specific student deficiencies associated with being educationally disadvantaged.

In another descriptive study, Elliot Eisner compared the developmental drawing characteristics of advantaged and disadvantaged children in grades one, three, five, and seven (10). The final report of his study is both a superbly delineated review of the various theories which attempt to explain the sources for children's art, and a thorough exposition of all aspects of his investigation.

Based upon the evaluation of 1,093 crayon drawings, Eisner found that as grade level increases, qualitative differences between the drawings of advantaged and disadvantaged children tend to diminish. Advantaged children are considerably ahead in their abilities to represent space at the early elementary grades, but the gap is almost closed by the time students reach the seventh grade. This is just the opposite progression for mathematics, science, and the social studies where variability tends to increase as children advance in school. This finding led Eisner to the following conclusion.

> The performance patterns of both populations suggest two things. First, the type of cognitive-linguistic deprivation that is characteristic of the slum environment appears to affect drawing technologies as it affects discursive-symbolic activity. This tends to provide additional support to Goodenough and Harris' claim that drawing is a useful index of concept formation. Second, the fact that the disadvantaged group catches up to those who are advantaged and because the average level of performance

> in drawing at the seventh grade is not impressive from a technical standpoint suggests that instruction in art with respect to the treatment of space is either absent or ineffective. The former appears to me to be a more accurate description of the state of affairs than the latter since few schools provide art teachers at the elementary school levels and even in the few cases when such teachers are available instruction in drawing is seldom emphasized (10:81).

Eisner believes that the lack of a sharp distinction between the drawing performance of advantaged and disadvantaged students is a function of inadequate art instruction in the elementary schools. Does this mean that when students are taught by art teachers in the secondary school greater differences will occur between advantaged and disadvantaged learners? While the answer to this question may not as yet be available, it seems reasonable to assume that such will be the case. Perhaps it is essential then that art curricula be altered to reflect the unique dispositions of specific groups of learners as well as to deal with deficiencies that may be amenable to art education practices. These steps would appear to be essential if art educators are to provide opportunities for maximum growth for both advantaged and disadvantaged learners. The studies cited above, however, do not provide enough of the information required to make decisions about how and what to teach the disadvantaged. For such insights, one must review descriptive literature which informs us of the nature and effects of economic and social deprivation; this was the procedure utilized for generating both the general and specific hypotheses of this study.

III. BEHAVIORS AMENABLE TO CHANGE

From a review of the literature, it was postulated that there are five areas which affect the in-school performance of disadvantaged learners which might be affected through appropriately structured art experiences: developing productive perceptual-cognitive patterns of behavior; acquiring an adequate self-image; establishing an appropriate past-present orientation; adopting positive attitudes toward social institutions such as the school; and utilizing leisure time in constructive ways.

Perceptual and cognitive needs. Deutsch has described the disadvantaged learner as:

> A child from any circumstance who has been deprived of a substantial portion of the variety of stimuli which he is maturationally capable of responding to is likely to be deficient in the equipment required for learning (8:168).

In addition to a restriction upon the variety of stimuli, Deutsch believes that from what is known of the slum environment, the stimuli that are available "tend to have poorer and less systematic ordering of stimulation sequences, and would thereby be less useful to the growth and activation of cognitive potential." (8:168)

Such deprivation affects both the behavior by which stimuli are perceived, encouraged and responded to, and the actual content of the child's knowledge and comprehension. The former includes perceptual discrimination skills, and the expectation of reward from accumulation of knowledge from task completion and adult reinforcement, as well as the ability to delay gratification. The latter, the actual content of knowing, would include environmental orientation, and the concepts of comparability and relativity appropriate to the child's age level (8:169). Experiential deprivation, according to Deutsch, also restricts opportunities to manipulate and organize the visual properties of one's environment. This implies a lack of sophistication in dealing with figure-ground relationships and spatial organization of the visual field (8:170).

The foregoing descriptions have a relevance for art education in that it has been demonstrated that art abilities are related to spatial organization aptitudes (17,30). One might assume, therefore, that as improvements occur in art functioning there would be a commensurate growth in abilities to organize the visual field; i.e., learning how to produce and respond to aesthetic stimuli will also eventuate in the improvement of perceptual skills.

In addition, art activities can provide opportunities to explore, identify, and express reactions to a wide variety of stimuli; comparing and relating visual forms to each other as well as to other concepts that are relevant. All of this can occur within an adult-controlled reward system, wherein accomplishment is reinforced and encouragement is provided to put forth a sustained effort toward the production of a more complete and meaningful configuration.

Finally, disadvantaged learners often lack the verbal skills which enable them to succeed in our schools. Language which is appropriate for school requirements simply has not been acquired (14). Art teachers can place special emphasis upon vocabulary building in relation to the variety of concrete stimuli available in the art class thereby facilitating the comprehension and retention of new terms. The acquisition of vocabulary leading to more sophisticated language usage should, in turn, be reflected in improved abilities for abstracting and conceptualizing.

Acquiring an adequate self-image. An additional problem that is frequently associated with deprivation is the lack of a clear-cut ego identity. Rohrer states that:

> The development of a clear-cut ego identity is based upon perceptions and conceptions of one's self and one's experiences with other individuals that are positive-toned and that affectively provide gratification to the individual (29:67).

Perceptual and conceptual deprivation, because of its lack of a well structured field of conditioning forces, leads to ego-diffusion, resulting in a lack of clarity about one's identity. Negatively-toned responses lead to the possession of a negative self-image; the self-hate often ascribed to the disadvantaged whose difficulties are compounded by also being members of minority groups. This is part of the "disadvantaged syndrome" which, in all probability, compelled McFee to number among her recommendations concerning art and the disadvantaged: the need to aid students in finding out who they are, and helping them to acquire a sense of individual worth and alter feelings of inferiority (24).

Since, in the everyday existence of the disadvantaged child, there are too few opportunities for interactions that are "positive-toned" or that affectively afford gratification, art activities need to be planned that will enable the child to interact positively with teachers, peers, and parents. He needs to have opportunities to make things, from paintings to puppets, that will evoke positive responses within others. It is important to note that what is produced must be meaningful within the context of the child's milieu and not merely be imitative of forms currently in vogue in the "fine-arts" world.

Ego-strengthening can also be dealt with by acquainting students with a wide variety of art forms which include examples created by artists, architects and designers who share their cultural heritage. In Los Angeles, for instance, the two largest minority and deprived groups are the Negro and Mexican-American. Both of these groups have a rich art heritage but all too few among their members have any awareness of the great contributions Negro and Mexican art are making and have made to the enrichment of mankind. Of course, this must be done in a very concrete way, showing and having students experience visually examples of such forms.

Past-present orientation. Interacting with limited numbers and variety of stimuli under chaotic conditions can also result in other behaviors which inhibit the achievement of success in our schools. Meager and poorly ordered experiences, because they do not provide opportunities for making adequate comparisons, often make it very difficult for the disadvantaged child to learn how to associate his past experiences with current situations. This deficiency is identified by Deutsch as a poorly stimulated memory function (8:171). The lack of opportunity to develop an awareness of past-present sequences results in disadvantaged learners being primarily present-oriented.

Being present-oriented is manifested in an interest in the concrete. Disadvantaged children frequently display a ready interest in art activities, in all probability, because they like to manipulate "things" and produce objects. This apparent affinity should be taken advantage of by developing the student's awareness of how forms he has produced, and ideas that concern him, are related to previously made forms and the ideas inherent within them.

The relationship between the past and the present could be dealt with continually by showing the learner how current art forms he or others have produced have evolved from the past and through reflecting upon the derivations of other phenomena such as the meager utensils available in one's own home, lettering on signs in neighborhood stores, and the visual aspects of familiar television programs.

Utilizing concrete experiences as a frame of reference from which to conceptualize past-present relationships may contribute in helping students realize that the past can be instrumental in dealing with the present. The facility to relate the past to current problematic situations would appear to be extremely important in achieving success in school.

Attitude towards school. Because the disadvantaged are often "object-minded," they usually lack interest in the abstract and theoretical. This is part of the attitude syndrome described by Frank Reissman in his book, *The Culturally Deprived Child.* He informs us that, while there are motivations for education among the deprived, from his observations they seem to be limited to vocational education. Frequently disadvantaged students are alienated from schools and classes where the middle class norm of what appears to be knowledge for its own sake prevails. This alienation, accompanied by the fact that most people within the community possess a minimum of formal education, results in a very low level of aspiration as far as school and schooling are concerned. Often, very little effort is put forth in nonvocational classes and many students leave school at the earliest opportunity (28:12-14).

Today, however, developing positive attitudes toward education and the efficacy of ideas and abstractions is extremely important, because occupational patterns are rapidly changing. The balance is shifting toward more complex occupations, leaving fewer openings for the unskilled or those who have been "vocationally educated" to perform outmoded tasks. If the progeny of the disadvantaged are to overcome their negative attitudes toward the hallmarks of academic learning--ideas, abstractions, and theorizing--every effort will have to be made to provide experiences which will facilitate the achievement of such a goal.

Art education has a unique role to perform in this regard because of the indigenous interest of the disadvantaged in the concrete and practical. Art activities should be initiated that will express an awareness of this interest but that will also go beyond and attempt to instill appropriate attitudes toward the worth of academic learning. For example, when students are drawing objects which are meaningful to them and they acquire sufficient skills to produce works that they value, they can be led via such productions into the realm of ideas and abstractions that are germane to the visual arts. As students learn that the quality of their product is affected by the quality of their thinking, they should come to value the necessity for thought and analysis in improving what they produce. Curricula in art designed to facilitate also "transfer of training" should result in improved attitudes toward the value of ideas, theory and thinking in general.

Using leisure time productively. Another area where attitudes and practices need altering is in the use of leisure time. If school practices designed to bring about positive changes in behavior are to be successful, what students experience during out-of-school hours is equally important. The disadvantaged pose a greater challenge in this regard than do other learners because of the anti-school forces which are so pervasive in the deprived culture. In other words, special efforts must be made to compensate for an environment which is non-school oriented.

McFee, in her inquiry into the leisure time patterns of the disadvantaged group she investigated, found that:

> Most of the students' time was spent in passive entertainment--watching television and movies and talking. Most frequently watched on television or in the movies were cartoons, humor, and crime and western stories (24:171).

Frequently, what is learned from such a viewing diet is that violence is the way to resolve problems and that the good life is embodied in possessing all manner of consumer goods from psuedo sports cars to the ubiquitous cyclo massage.

This seeking after creature comforts and consumer embellishments as a means to the "good-life" is part of the "universal trap" described by Paul Goodman when he alludes to the ideal of "education for leisure" being in conflict with the economic necessity for greater commodity consumption--with the result that the deprived are dissuaded from genuine involvement in those leisure time activities which have the potential to affect genuine satisfaction (13).

Because it is doubtful that his immediate home environment will present the disadvantaged child with occasions for this type of involvement, emphasis needs to be placed upon developing, in the art class, an awareness of the opportunities art affords for creative and productive activity. Students should become familiar with possibilities for art experiences that exist outside of the school, wherein skills and knowledge acquired in the art class can be applied while utilizing media that are readily available at little or no cost. Building structures with "found" objects, carving palm tree bark, creating papier mache sculpture, and making mosaics from discarded jars and bottles are examples of possible out-of-school activities.

A canvass of school neighborhoods needs to be made to identify significant stimuli that are available for direct experiencing. In addition, field trips should be taken to museums, galleries and other areas where youth can come into contact with a variety of significant forms. Students need to be made aware of how such places can be reached by public conveyance.

IV. DEVELOPING RELEVANT ART CURRICULA

Deutsch has isolated other behavior patterns characteristic of disadvantaged children which appear to be directly related to the way many art classes typically function. He points out that in the experience of the deprived child, approval and punishment are most often related to activities that are "motoric" rather than conceptual in nature (8:172). In the art class students are frequently rewarded for what they do--the projects they complete and how well they distribute and collect materials--rather than for the quality of their ideas. The short attention span attributed to disadvantaged learners is catered to, in the art class, by the manipulation-of-a-wide-variety-of-materials curriculum wherein the semester's work consists of producing many projects which take but a few days to complete. The lack of close supervision which fosters growth in independence in creating one's own amusements may manifest itself in the disadvantaged child's often being innovative with materials in the art class, but, as Deutsch points out, this independence does not necessarily transfer to the world of language and abstract thought (8:178).

Reinforcing the status of the disadvantaged. Thus, on the surface, many art classes would appear to offer opportunities for disadvantaged learners to be "themselves." Unfortunately, however, this method of relating curricula and methods to the needs of the disadvantaged may well be a device for merely reinforcing and, thus perpetuating the low status of these children. Students in such art classes may also be deluded into believing, as a consequence of their participation in quick-success, manipulative activities, that art is an easy "fun-thing." Such an erroneous impression can only add to the inappropriate achievement motivation which is characteristic of the disadvantaged; many hold unrealistic notions about vocational potentials that need to be replaced by a belief in the value of hard work, perseverance, and slow steady gains (23).

A recent article describing a study concerned with art and the under achiever reported that the superficial program was discarded in the junior high school because under achievers did not really benefit from the "breadth" approach. A new curriculum was instituted which was more specific and, wherein, a limited number of experiences were provided with greater emphasis being placed upon design concepts and their relation to tools and materials (18). Other investigators have also pointed to the deficiencies of the breadth curriculum in significantly altering behavior (2).

Seeking a viable alternative. The foregoing analyses of the deficiencies of disadvantaged learners and the speculative notions concerning how art education strategies might be organized to cope with them, was the basis for postulating that the disadvantaged would benefit most from a structured "depth" curriculum in art which, in addition, reflects an understanding of his unique needs. This postulate, in turn, led to the formulation of testable hypotheses which served as the generative questions our experimental study attempted to answer.

V. THE EXPERIMENTAL HYPOTHESES

The following is the basic hypothesis this study sought to test: Economically and socially disadvantaged youth participating in an art program, wherein art curricula are structured specifically to deal with certain perceptual-cognitive and attitudinal behaviors associated with the problems of the disadvantaged, will make significantly more improvement on the criterion measures listed below than will disadvantaged youth who have not so participated.

(a) Perception tests: perceptual speed, spatial orientation and spatial visualization.
(b) Cognitive tests: general vocabulary and abstract reasoning ability.
(c) Attitude tests toward: self, authority, and uses of leisure time.

Related hypotheses. Because the curricula variations proposed in this study were designed to also facilitate greater learning in art, *per se*, it was further hypothesized that:

> Participation in a specifically structured art program will result in disadvantaged youth making significantly greater gains in their ability (1) to produce art forms which are more differentiated and complete, and (2) to identify art terms as measured by an art vocabulary test than will disadvantaged learners who have not so participated.

Students participated in two types of experimental programs. Both were planned with a consideration for the needs of the disadvantaged. One, however, was a "depth" program wherein a limited number of media are dealt with over prolonged periods of time. The other was an exploratory curriculum which is typically employed in the seventh grade. This was done to test the following additional hypothesis:

> Disadvantaged seventh grade art students participating in a "depth" art program will make significantly higher gains on the criterion measures utilized in this study than will similar students studying under an exploratory curriculum.

Examining related questions. Because considerable time, effort, and funds were expended in setting up and orienting experimental and control groups, it was deemed worthwhile, in addition to testing out the foregoing hypotheses, to attempt to answer the following questions.

What is the magnitude of the relationship between student development as measured by our testing instruments and the art teachers':

(a) art training and experience in teaching the disadvantaged?
(b) ability to conceptualize what he intends to teach?

(c) utilization of information about the structure of art and the nature of disadvantaged learners?
(d) utilization of special teaching materials developed for this study?

The subsequent sections of this report deal with: procedures utilized in the attempt to answer questions and test out hypotheses, the findings from our testing program, and the conclusions arrived at from examining test results and correlational analyses.

CHAPTER II. RESEARCH DESIGN

The classical paradigm for conducting a controlled experimental research program was utilized to test out the hypotheses of this study. Criterion measures were identified or developed, experimental and control groups were selected, relevant experimental "inputs" were provided and implemented, and a pre-post testing program was instigated. Figure 1 represents a diagram of the design of this study. A more detailed account of the many factors involved in conducting our investigation appears in the subsequent sections of this chapter.

I. CRITERION MEASURES

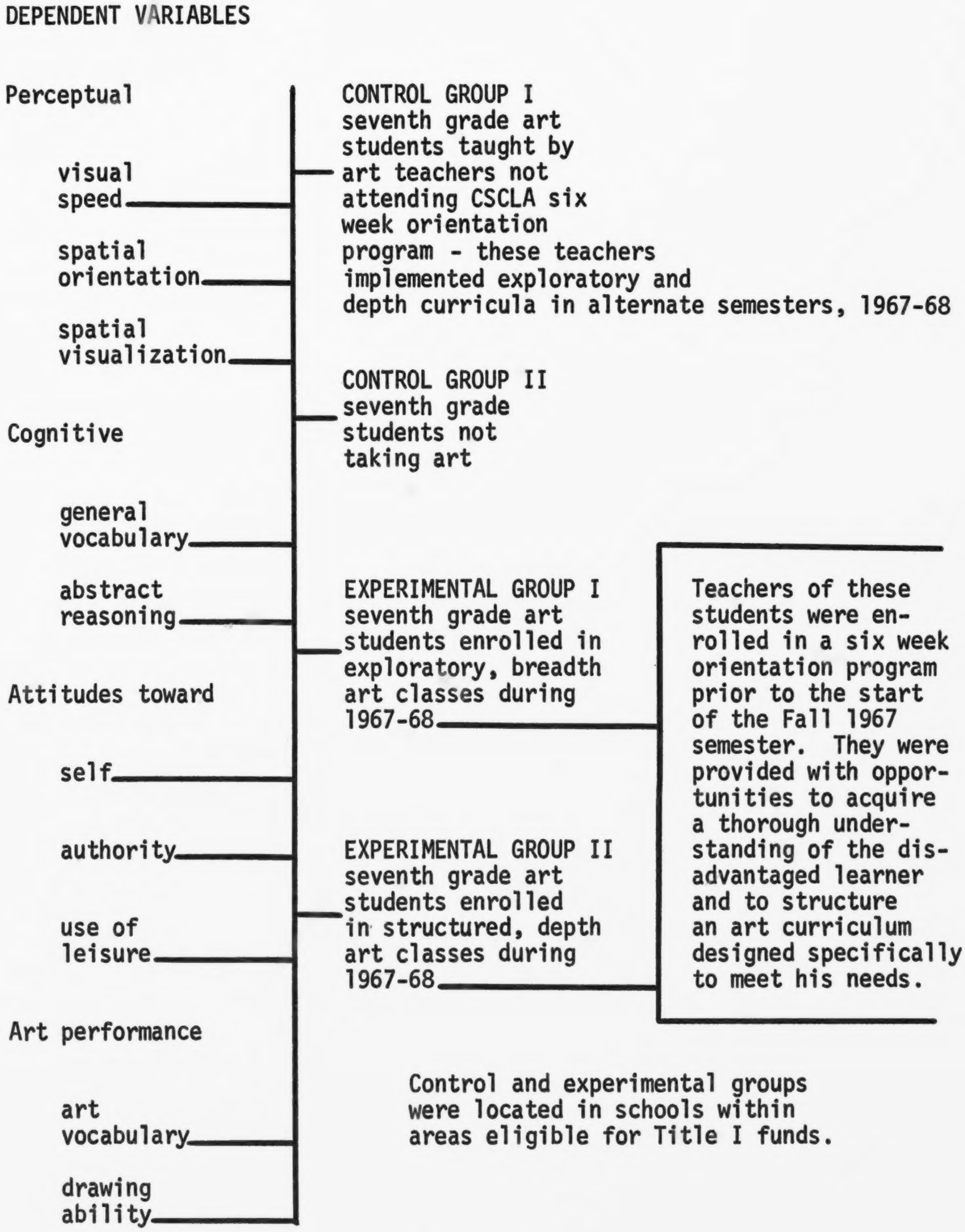
Estimating the efficacy of our hypotheses required the use of measuring instruments which fall into four basic categories: perceptual, cognitive, attitudinal, and art performance. The instruments used in this study were either acquired or constructed during the 1966-67 school year. Wherever possible, testing devices used pictorial materials to elicit responses so that disadvantaged students who often have difficulties with school vocabulary would not be handicapped. The nature of these instruments and their relative validity are discussed in this chapter; data dealing with their reliability will be found in Chapter III. Examples of the various response stimuli which were employed can be found in Appendix B1.

Perceptual tests. One of the test groupings developed for this study was an aptitude battery which contained tests of perceptual abilities as follows.

The first instrument was a 24 item, two minute, *Visual Speed Test* which utilized ink drawings of tools employed by artists and designers as reponse items. Although this test was drawn up specifically for this study under the guidance of one of our consulting psychologists, Wayne Zimmerman, Testing Officer at California State College, Los Angeles, it is merely an alternate form of the test *Perceptual Speed,* written and published by J. P. Guilford and Dr. Zimmerman. A similar test developed for the U.S. Employment Service, *Identical Forms,* uses shop tools as response stimuli. The Educational Testing Service kit of reference factors very strongly recommends both *Perceptual Speed* and *Identical Forms* as measures of the factor of perceptual speed which accounts for an assumption of content validity for our *Visual Speed Test* because of its obvious relationship to these two recognized tests.

The second scale was a 16 item, ten minute, test of abilities to assess relationships existing among drawings of blocks. Forms of this test have appeared in at least nine major factor-analytic studies, almost always loading on a visual-spatial factor (15). Since these

FIGURE 1. DIAGRAM OF EXPERIMENTAL STUDY



DEPENDENT VARIABLES

Perceptual
- visual speed
- spatial orientation
- spatial visualization

Cognitive
- general vocabulary
- abstract reasoning

Attitudes toward
- self
- authority
- use of leisure

Art performance
- art vocabulary
- drawing ability

CONTROL GROUP I
seventh grade art students taught by art teachers not attending CSCLA six week orientation program - these teachers implemented exploratory and depth curricula in alternate semesters, 1967-68

CONTROL GROUP II
seventh grade students not taking art

EXPERIMENTAL GROUP I
seventh grade art students enrolled in exploratory, breadth art classes during 1967-68

EXPERIMENTAL GROUP II
seventh grade art students enrolled in structured, depth art classes during 1967-68

Teachers of these students were enrolled in a six week orientation program prior to the start of the Fall 1967 semester. They were provided with opportunities to acquire a thorough understanding of the disadvantaged learner and to structure an art curriculum designed specifically to meet his needs.

Control and experimental groups were located in schools within areas eligible for Title I funds.

published studies were all done before 1960, when Guilford developed his model of the Structure of Intellect, the factors named "spatial" were more or less a grab-bag for all figural tests. Guilford's model now places tests like *Blocks* in the factor called "Spatial Orientation." Empirical validation of this test by the Aptitudes Research Project (ARP) at the University of Southern California indicates that this test is most strongly saturated with a spatial-orientation ability component, but that it also measures spatial visualization and spatial foresight to a small but significant degree. This *Blocks* test and our other spatial test were adapted for this study from batteries being used by the ARP.

Our third perceptual test was a 16 item, 10 minute test which required the identification of similar block forms through rotating blocks mentally. This *Block Rotation* test is a simplified adaptation of *Space Relations*, a measure of spatial visualization in the *Differential Aptitude Test* battery; our test does not require the given figures to be visually constructed, only rotated. Research at the ARP has indicated that *Block Rotation* is an almost pure measure of spatial visualization.

Cognitive measures. Our aptitude battery also contained word understanding and abstract reasoning tests.

The *Word Understanding* test, a general vocabulary scale, was an alternate form of a myriad of tests designed to measure the aptitude of verbal comprehension. Its validity as such a measure, although not empirically tested, is in little doubt. Our test required the student to identify the word, from a list of four words, which had the same meaning as the given word. There were 32 test items to be completed in no more than eight minutes.

To assess abilities for dealing with abstractions that might be developed as a result of participating in concrete art experiences, an abstract reasoning ability test, referred to as *Similar Groups*, was developed specifically for this study. Our *Similar Groups* test requires students to look at a page of 18 drawings and make up six groups utilizing an organizing concept of their own choosing; e.g., selecting four drawings because they are pictures of "food" or because they are all "vegetables." Basing one's selections upon the latter concept would reflect a higher level of abstract reasoning ability because "vegetable" is a more sophisticated concept than is "food." Students had four minutes to make up six groups working from a page with 18 pictures; there were three such pages and the total time allowed was 12 minutes.

This measure of sophistication or abstractness of ideational concepts was modified after a test administered by Oliver and Hornsly (4:79). They found that not only did one's concepts become more abstract in nature with increasing age, but there was also a significant change in the proportions of concreteness-abstractness in grades 1, 3, 5, and 6.

Our *Similar Groups* test was developed under the guidance of Isaac Berman, Associate Professor of Educational Psychology at California State College, and another of our consulting psychologists. Dr. Berman is a student of the Swiss psychologist Jean Piaget whose investigations into the developmental thinking patterns of children have led Dr. Berman to conclude that abstract reasoning abilities should be developed to a considerable degree by the time children are in seventh grade.

Attitudinal measures. A second battery of tests was developed to assess attitudes toward the use of leisure time, various types of authority, and one's self. Separate batteries were constructed for boys and girls.

Our *L-T Picture Test* was essentially a non-verbal interest inventory, the scales of which were designed to measure major areas of leisure time activity. This test was not initially analyzed for validity. Therefore, a factor analysis of its intuitively derived scales, at the item level, was completed before scores were evaluated for this study. The hypothesized leisure time scales were: athletic, domestic or mechanical, aesthetic, social, intellectual, and passive entertainment.

Students had ten minutes to react to 40 stimulus pictures which showed various ways of using one's spare time. They were to respond to each drawing by circling the letter R (rarely), S (sometimes), or O (often) above it in relation to how their use of leisure time corresponded to the use depicted in the picture.

Our *Picture Behavior Test* was a non-verbal inventory designed to measure attitudes toward school, legal, peer, and parental authority, and responsible maturity in stress situations. The constructs measured in this inventory were hypothesized to be: Withdrawal, Hostility, Passive Acceptance, Positive Adjustment. They were also factor analyzed so that the dimensions of attitudes underlying the responses were isolated and identified.

The stimulus items in this scale included a statement describing an event that was accompanied by four drawings, labeled A, B, C, and D, showing alternative reactions to the event. Students responded to each statement by selecting the drawing which corresponded most closely with how he or she would react to the event. They had twenty minutes to respond to twenty statements.

Our *Semantic Differential Test* employed standard psychological-connotative ratings intended to obtain measures of self-image and attitudes towards parents and authority. The scales hypothesized were Self Image--personal and social, Parental Attitude--mother and father, Attitudes toward Institutional Authority, and Self-Image Discrepancy (Adjustment). Such scales are commonly used in clinical and counseling settings and were suggested by Dr. Berman whose experience in these areas is extensive.

Students were asked to rank their reactions to pairs of words such as sad-happy on a five-point scale and in relation to the concepts: myself, my mother, my father, rules, and how I'll be. Ample time was provided so that students could respond adequately to the ten pairs of words listed under each concept.

Art performance tests. Estimates of growth in art learnings were acquired through the administration of an art vocabulary test and a drawing aptitude test.

Our *Art Vocabulary Test* (AVT) was a 96-item picture-word vocabulary scale with all stimulus items being relevant to experience with the visual arts. It was hypothesized that this test would measure more than a basic aptitude for art vocabulary; it should also reflect achievement in understanding art-related concepts and the use of art materials.

The AVT was developed by the project director as a pictorial device for measuring the attainment of an art vocabulary repertoire. Students were asked to circle the letter next to the one of four drawings which best showed what a given word described. The 96 words in this test were distributed to confront the student with words that became progressively more difficult to define; beginning with words such as pencil, paper and crayon, and ending with kinetic, facade and tachisme. Twenty minutes were allowed to complete the test.

Our *Art Product Test* was an achievement test designed by the project director to measure student abilities to draw a given form using particular media; in this instance, black crayon and a sheet of 9 x 12 inch white drawing paper. Students were allowed ten minutes to draw, to the best of their ability, a manzanita branch mounted in a plaster-of-paris base.

Pre and post test drawings were evaluated on five criteria by two judges acknowledged to be outstanding seventh grade art teachers, Jim Burk and Ann Sullivan. Both Mr. Burk and Miss Sullivan teach art at Nimitz Junior High School in the Southeast Los Angeles area. The five criteria utilized in making their judgments were variation of lines, variation of values, craftsmanship, unity, and overall quality. A facsimile of the total scale can be seen in Appendix B2. The reliability of judgments is reported in Chapter III.

Social status. To establish the relative socio-economic position of the subjects in our study, students were asked to indicate, via a brief questionnaire, the present occupations of both mother and father. This criterion was agreed upon after conferring with Ralph Thomlinson, Professor of Sociology and Chairman of the Sociology Department at California State College, Los Angeles. Dr. Thomlinson advised that occupation is a criterion most consistently utilized to establish one's position in social space.

To quantify student responses, points were allotted from 1 to 10 based upon the scaling of over ninety occupations in *Principles of Sociology* (11:206). If the father's occupation was not listed then the mother's occupation was utilized. The results of this social assessment are reported in Chapter IV.

II. ESTABLISHING EXPERIMENTAL AND CONTROL GROUPS

During the Fall of 1966 contacts were made with seventeen school districts in Southern California known to be eligible for poverty area funds as stipulated in the requirements set forth by Title I of the Elementary and Secondary Education Act of 1965. To an inquiry inviting their participation in our research program, fifteen of these districts responded affirmatively.

Identifying teachers. After receiving permission to do so from their district office, thirty-eight seventh grade art teachers in fifteen different districts were sent a letter inviting their participation. Seventh grade teachers were selected because in Southern California schools this is usually the only grade when students are *required* to take art with an art teacher. Therefore, it was assumed that self-selecting factors associated with elective art classes beyond the seventh grade and the lack of art background of most elementary teachers were variables that would not differentially affect our study population.

Teachers were informed that they would be required to attend a six week orientation session during the summer of 1967, and to conduct a controlled experiment during the 1967-68 school year. For their efforts they would receive a stipend of $75.00 per week and six units of college credit.

If a teacher responded affirmatively, he was sent a detailed questionnaire, a copy of which can be seen in Appendix B3. Based upon answers to questions concerned with years of experience and number of units in art courses, teachers were first stratified using these two criteria and then randomly selected to serve as a teacher of either an experimental or control group. Those selected were asked to confirm their willingness to participate and conform to the requirements of our project.

Control group teachers were induced to assent by being offered $200.00 for attending a two-week orienting seminar just prior to the start of the Fall 1967 semester. This stipend and orienting seminar were provided to compensate for any increased interest which might be engendered in experimental group teachers and thereby, hopefully, serve to offset any possible "Hawthorne" effects.

By May 1967, eighteen teachers were selected to conduct our experiment and nine were chosen to serve as control group teachers. Because of unforeseen circumstances--dropping out of the orientation seminar, teaching within an inappropriate school structure, and administering tests and scheduling experimental programs improperly--the number of teachers working with our experimental groups was ultimately reduced to fourteen. Table I is a listing of the number of teachers from school districts participating in this study, Table II is a listing of characteristics reported

TABLE I. SCHOOL DISTRICTS PARTICIPATING IN THIS STUDY

No. of teachers	School district
1	Compton Union High School
1	Corona Unified
1	Duarte Unified
1	Glendale Unified
1	Jurupa Unified
3	Lawndale
1	Little Lake City
1	Long Beach Unified
4	Los Angeles City
2	Montebello Unified
1	Paramount Unified
2	Pasadena City Schools
3	Rowland
1	Santa Monica Unified

TABLE II. CHARACTERISTICS REPORTED BY TEACHERS SELECTED TO TEACH EXPERIMENTAL AND CONTROL GROUPS

				Ranking of Problems in Teaching Art to the Disadvantaged (1 - worst to 6 - least difficult)					
Experimental teacher	Per cent of disadvantaged in class	No. of years teaching disadvantaged	No. of units completed in art	Low verbal comprehension	Lack of interest in school	Short attention span	Lack of interest in art	Differences in cultural background	Lack of background in the arts
1	20	2	50	4	2	1	5	6	3
2	100	1.5	100	3	2	4			1
3	50	10	100	2	4	5	6	1	3
4	25	8	82		3		3	3	
5	50	3	50	3	1	4	6	5	1
6	100	3	75	1	2	4	6	5	3
7	50	3	130		1	2	3		4
8	50	15	75	2	4	1	5	6	3
9	75	3	10	2		3	1		4
10	25	8	25		4		3		1
11	100	1	50			2			1
12	100	7	132	3	2	4		5	1
13	90	.5	50	3	1	5	4		2
14	90	5	15	1	5	4	3	2	6
TOTAL	925	70	944	24	31	31	45	33	32
M	66	5	67.4	M* 2.4	2.6	2.6	4.1	4.1	2.5
Control teacher									
1	98	3	16	2	1	4	5	6	3
2	75	0	125	4	2	6	5	1	3
3	100	2	16	3	1	4	2	6	5
4	75	10	100	4	3	2	3	3	1
5	25	3	68	5	1	3	4	6	2
6	100	1	47	1	3	4	6	2	5
7	75	8	77	3	2	1			4
8	50	5	100		2	3	4		1
9	50	4	75	1	2	3	6	5	4
TOTAL	648	36	624	23	17	30	35	29	28
M	72	4	69.3	M* 2.9	1.9	3.3	4.4	4.1	3.1

* = TOTAL ÷ number reporting problem

in the questionnaire previously cited by our fourteen experimental and nine control group teachers; an examination of this table provides a basis for comparing the teachers who conducted our experiment.

III. ORIENTING TEACHERS

To prepare teachers selected to implement experimental art curricula, a six week orienting session was provided for three hours every morning, Monday through Friday, from July 24 through September 1, 1967. It was during these meetings that participants met with consultants, and information regarding the nature of disadvantaged learners and the structure of art was disseminated and discussed. A previously developed experimental text was also discussed and a variety of teaching media were distributed. Teachers were also informed about the administration of our testing program. Toward the conclusion of the orienting session, teachers were asked to formulate semester plans based upon what they had been presented and their knowledge of the requirements of their particular teaching environs. The calendar of events which occurred during the six week period can be found in Appendix A1 .

Learning about the disadvantaged. Information on the nature of disadvantaged learners stemmed primarily from two sources: a summary of the results of a comprehensive descriptive study conducted by Newton Metfessel, Professor of Educational Psychology at the University of Southern California, and the insights provided by June King McFee, Head of the Institute for Community Art Studies at the University of Oregon, during the three days she consulted with our experimental group teachers. Metfessel's summation can be found in Appendix A2 . McFee's contribution was digested and appears in Appendix A3, which is a summary of the statements provided by consultants appearing before our experimental group teachers.

Information on the structure of art. During the orienting session, experimental group teachers were also provided with information about the structure of art which was provided to enhance what they already understood about the nature of art as a subject for study. The major portion of this information was acquired by the project director during the 1966-67 school year as follows.

Ten recognized art experts were contacted regarding their willingness to share their views of the structure of art with our experimental group teachers. They were asked to provide either a written or tape recorded response to a detailed questionnaire developed for this study. Seven of these experts eventually submitted their responses which were, in turn, transmitted to the experimental group teachers. A summation of questions and responses can be found in Appendix A4 of this report.

Additional insights regarding art as a subject for study were provided by Manuel Barkan, Professor of Art Education at Ohio State University, currently the National Art Education Association's Art Educator of the Year, during his three day visit to our orienting sessions.

Discussions regarding the nature of art and how it might be organized to facilitate its systematic study were conducted by Professor Barkan. His contribution is summarized in Appendix A3.

Dealing with depth vs. breadth. Barkan also led both experimental and control group teachers (who met with him in the afternoon) to postulate the following definitions for a breadth or exploratory art curriculum and a depth art curriculum.

> The *exploratory art curriculum* deals with a relatively wide variety of gross concepts and processes with a limited degree of variation and detail. Activities designed to develop an awareness or understanding of these concepts and processes would occur sequentially, one after the other without extensive back reference. The principal orientation would be a focus upon the execution of a variety of art projects of relatively limited scope and time requirements.
>
> The *depth art curriculum* deals with a more limited number of gross concepts and processes. These concepts and processes would be reexamined and reconstructed, sub or supporting concepts would also be considered in order to multiply alternatives and ramifications. Concurrent relationships between and among concepts and processes would be emphasized. The principal orientation would be a focus upon the extended attention to and examination of concepts associated with the visual arts.

These definitions were part of the conrtrolling factors which guided both experimental and control group teachers in formulating two separate semester plans: a depth plan to be taught one semester and an exploratory plan to be used the other semester. Teachers were assigned at random to teach from either their depth or exploratory plan during the Fall 1967 semester and then implement their alternate plan for the Spring 1968 semester.

Consulting with Barkan about how to organize an art curriculum within "exploratory" or "depth" limitations and developing two teaching plans accordingly were the only orienting experiences shared by experimental and control group teachers. The major differences between these two groups were the information about the disadvantaged and the structure of art, and the variety of teaching media provided only for the edification and use of our experimental group teachers.

IV. TEACHING MEDIA

Experimental teachers were provided with special textbooks for their students, a variety of two and three dimensional reproductions, and pre-cut picture mats as aids for teaching important ideas and dealing with behavioral deficiencies associated with disadvantaged youth.

The experimental text. During the 1966-67 school year, an experimental text, *All About Art,* was put together by the project director. This text, in its printed form, is 75 pages long, has an 8-1/2 x 11 inch horizontal format, is profusely illustrated with photographs and drawings, and is spiral bound and printed in black ink on opaque white paper. The book is divided into five parts with titles posed as questions: What is art? Who makes art? What are the sources for art? Why is art important to you? Why is art important to society?

Prior to its printing, *All About Art* was submitted to a nationally known authority on reading, Delwyn Schubert, Professor of Education at California State College, Los Angeles, for his analysis of its grammar, syntax, and difficulty level. Professor Schubert reacted very positively to the text. He reported it was written for seventh graders and his suggestions for improving sentence structure and terminology were incorporated in the final manuscript.

The purpose of *All About Art* was to present information about art in a very basic way. It was designed to serve as a catalyst for discussion while implicitly dealing with several deficiencies frequently displayed by disadvantaged students as follows. Because such learners often have very limited vocabularies, *All About Art* was planned to enlarge the students' word repertoire by capitalizing unfamiliar terms in the text and then underlining words nearby which serve to define the term. Several examples follow:

page 8	These objects may be interesting to look at and cause us to have certain feelings, but they are also things we can use. They are FUNCTIONAL.
page 14	When we talk about more than one medium we use the word MEDIA.
page 36	Artists who use three-dimensional materials to express their ideas are called SCULPTORS.
page 72	When an artist produces a new kind of art object we say his work is ORIGINAL, and that he is a CREATIVE artist.

To enhance the student's self-concept, artists and works were often selected for the text because they had some relation to our students' racial or ethnic heritage. The section titled Who Makes Art? included, among the photographs and text describing eight different artists and their works, materials about a Negro designer, a Spanish surname photographer, a Negro sculptor who works with "found" objects, and a young female sculptor.

Part III, What Are the Sources for Art?, places special emphasis upon the role of culture in conditioning what one produces and how one responds. This section was planned to generate class discussion about the ways one's culture affect his behavior. It was assumed that one needs to have such an understanding if he is ever to overcome some of the unfortunate behavior patterns which his culture has foisted upon him.

Cultural determinism is a reoccurring theme in the experimental text. It pervades Part I, What Is Art?, which seeks to explain the nature of art and aesthetic experience by first dealing with the relationships between art and our basic needs--food, clothing, shelter--and art and the mass media, and then concludes with a consideration of forms found in galleries and museums. It is also implied in Part IV, Why Is Art Important to You?, and Part V, Why Is Art Important to Society? The student is confronted in these sections with the need to be selective in what he looks at and how he uses his time and efforts if he is to derive satisfaction from his environment; the notions that art can help us to understand the past, communicate with our fellow beings, and bring new and enriching experiences into our lives are also presented.

At the end of each of the book's five parts, the student is asked to answer ten *review* questions. These are designed to provide practice in recalling the past to deal with the present; what did you learn before that will help you to answer today's questions? A listing of the questions from each part of the book can be found in Appendix A5. It is included to provide the reader with a clearer understanding of what is contained in the experimental text.

A list of suggestions for further study was also included at the end of each section of *All About Art*. These were selected from a pool of suggestions provided by the experimental group teachers. Each teacher reacted to a dittoed copy of the text, identified errors, offered alternatives, and provided two ideas for "further study" for each part of the book.

Reproductions. The experimental text consisted of text, photographs, and drawings. Of the photographs in the book, twenty-five were made from the forty-four two dimensional and six three dimensional reproductions purchased for each of the experimental group teachers. These reproductions were selected because of their potential affinity for seventh graders in general, and for disadvantaged learners from racial and ethnic minorities in particular. They were used to complement *All About Art* and to serve as visual and ideational stimulation for the students in experimental classes.

In order to provide information about the reproductions, and also to involve our teachers even further in our program, every teacher was assigned the task of developing "information sheets" for three different reproductions; these were subsequently dittoed and distributed to all experimental group teachers. Information sheets were research reports which included: statements about the physical qualities and interpretative data associated with the art work itself; important biographical information about the artist; and five questions posited in simple terms designed to provoke interest and thereby involve students in meaningful discussions. The format for developing these information sheets and three examples selected from the forty-seven information sheets produced can be found in Appendix A6. Figure 2 is a listing of the reproductions provided each of our teachers.

Pre-cut mats. As an additional attempt to enhance the student's self-concept, 15 x 20 inch pebble board picture mats, pre-cut to accomodate a sheet of 12 x 18 paper, were provided for teachers in sufficient quantities to enable each student in the experimental group to take home at least one "complete" work of art which he had produced. This technique was employed to arouse positive reactions to the student's efforts from family and peers and thereby contribute to the development of a clearer and more positive self-image.

Formulating semester plans. To induce teachers to utilize the information and media provided under the auspices of this study, each teacher was required to formulate a plan of action which delineated what and how he intended to incorporate these "inputs" within an exploratory and depth art curriculum. While working with Professor Barkan, both experimental and control group teachers developed a format for writing down what they intended to teach the classes they would select to participate in our program during the 1967-68 school year.

Teaching plans were divided into segments dealing with objectives, activities, and teaching materials. Each teacher made two plans, an exploratory and a depth plan. The planning format used by both groups differed only because the control group plan did not provide for the inclusion of the "specifics" acquired by experimental group teachers during their orienting session. The experimental group format included, in addition, divisions for indicating concepts, and categorizing curriculum under either "the structure of art" or "student needs."

Copies of their experimental and depth plans were submitted to the project director by both experimental and control group teachers at the conclusion of their orienting sessions. Teachers were asked to follow their plans as closely as possible during the 1967-68 school year. An indication of the nature of these plans and the planning formats used by the two groups can be found in Appendix A7 which contains samples from several of the actual plans.

The quality of these teacher made plans--in terms of their adequacy in providing for and guiding worthwhile instruction--was evaluated by two very experienced critic teachers using a scale developed for this study: Harvey clements, an art teacher at Montebello High School, and Jim Burk, Chairman of the Art Department at Nimitz Junior High. A copy of this scale is shown in Appendix B4.

The results of their evaluation as well as a discussion of the results of the testing procedures employed to provide an estimate of the validity of our hypotheses and the efficacy of the inputs described in this chapter will be dealt with in Chapter IV. The next chapter is

FIGURE 2. A LISTING OF EXHIBIT MATERIALS (REPRODUCTIONS) PROVIDED FOR EACH EXPERIMENTAL GROUP TEACHER

Reproductions for which information sheets were developed that also appear in the experimental text *All About Art:*

- Buffet - Le Canal Saint Martin
- Klee - Sinbad the Sailor
- Cezanne - Les Pommes et Oranges
- van Gogh - L'Homme a L'Orielle
- Braque - Le Jour
- Marc - Sheep
- van Gogh - House at Auvers
- Chagall - I and My Village
- Innes - June
- Hicks - Peaceable Kingdom
- Homer - Weather Beaten
- Stella - Brooklyn Bridge
- Pickett - Coryell's Ferry
- Rembrandt - Head of Christ
- El Greco - View of Toledo
- Breughel - The Harvesters
- Picasso - Guernica
- Picasso - She Goat (3-dimensional)
- Elephant Tusk (3-dimensional)
- Aztec Sun Dial (3-dimensional)
- Modigliani - Head of Woman (3-dimensional)
- Stuart - George Washington
- Nolde - The Prophet
- Rivera - The Flower Vendor
- Totem Pole (3-dimensional)

Reproductions for which information sheets were developed:

- Degas - Girl at the Ironing Board
- Matisse - La Blouse Roumaine
- Picasso - The Lovers
- Renoir - Girl with Watering Can
- Modigliani - Woman with Baby
- Burchfield - November Evening
- Marin - Movement on the Road
- Goya - Senora Sebasa Garcia
- Utrillo - The Street
- Seurat - Harbor at Honfleur
- Gauguin - Les Mueles
- Wyeth - Study for "April Wind"
- Wood - American Gothic
- Grandma Moses - It's Haying Time
- Huang Chun-Pi - Silent River
- Chinese Cave Painting - Horses
- Kyosai - Tiger
- Mask with Bull Horns (3-dimensional)
- Our Nation's Capitol
- Picasso - Man with a Pipe
- Feininger - Village Street
- Harnett - Music and Good Luck

Reproductions provided:

- U.N. Building
- The Golden Gate
- French - Champion of Freedom: Lincoln

devoted to a discussion of the methodology involved in the test development and statistical analysis phases of this study.

CHAPTER III. MEASUREMENT PROCEDURES

In this multi-faceted research project, many and various kinds of objective assessment devices were employed to measure the effects of several instructional modes, while attempting to account for those uncontrollable "contaminating" variables implied in research on human beings. There was a need for a far-ranging selection of statistical procedures, beginning with the analyses involved with test development, followed by a consideration of control and criterion variables, and concluding with procedures designed to test the major hypothesis.

I. TEST DEVELOPMENT

In the first section of Chapter II, each test device was described and an attempt was made to anchor each one into firm psychometric theory or application. Realizing that the extent to which there can be confidence that instruments measure what they are hypothesized to measure depends frequently upon the results of previous research findings, many of our test instruments were described as adaptations or relatives of previously used tests.

There are, of course, methods available for checking upon such assumptions. In this study, analyses of each test's reliability, homogeneity, and, in some cases, of their correlates, were employed as a means of verification.

Aptitude test reliability. The tests *Visual Speed, Blocks, Block Rotation,* and *Word Understanding* were evaluated for reliability by intercorrelating their respective two separately-timed part scores for all examinees based upon pre-test performance. The reliability estimates were therefore of the alternate-form type; the interpart correlations extended to apply to the whole test through application of the Spearman-Brown correction. The reliability of the measure of concept-sophistication, *Similar Groups,* was evaluated through an alternate-form technique applied to the three separately timed parts. Table III presents the preliminary findings on the aptitude test reliabilities.

Two aspects of Table III deserve some clarification: the sample sizes and the scores for *Blocks* and *Similar Groups*. Since the estimation of test reliability is not only important for the interpretation of the results of this particular study, but also has vital implications for further use of the tests, the estimates of each test were based upon all examinees who were administered that test in any pretesting. The sample sizes utilized in reliability analyses, therefore, will generally exceed those utilized in the analysis of the major hypotheses. The larger samples include many examinees not participating in the study due mainly to the fact that posttest data were not available for them.

TABLE III. RELIABILITY ESTIMATES OF THE FIVE APTITUDE TESTS

Aptitude Test	Number of Parts	Form of Score Distribution	Sample Size	Reliability Estimate
Visual Speed	2	Truncated	1326	.51
Blocks	2	Normal	1298	.85
Block Rotation	2	Normal	1305	.72
Word Understanding	2	Normal	1302	.83
Similar Groups	3	Normal	1169	.78

The scores for *Blocks* were adjusted for many students who obviously misunderstood the test instructions. Test scorers noticed that 373 examinees misinterpreted the instructions on either one or both parts of the test in the pretest, and counted only the lettered blocks for their answers. These examinees' tests were scored according to keys appropriate to their misunderstanding, and then part scores were adjusted to equate the means for parts between those examinees who performed as expected and those who did not. Instructions were not altered during the posttest administration of *Blocks* for fear that additional instructions would contaminate the difference scores. Therefore, the empirically derived pretest adjustments were applied to all posttest scores which were the results of similar misunderstanding of the instructions.

Similar Groups was also responded to in an incorrect manner by approximately 130 examinees. For some reason, these examinees grouped only within rows of pictures, rather than among all the pictures on the page. Since such grouping results in characteristically unsophisticated responses that cannot be considered parallel to responses based upon whole-page groupings, scores could not be adjusted or estimated and the examinees were excluded from the test-reliability analysis and also from any further analysis.

Attitude test reliability. Whereas the aptitude measures have solid psychometric ancestry, the attitude measures were new and unique. Essentially, the *L-T Picture Test* is a picture version of the type of test that one would construct for adults or more scholastically fluent adolescents to obtain indications of what their leisure-time activities are. From five to seven items picture young people (boys for the male form of the test, girls for the female form) engaged in each type of activity under consideration. It was hypothesized that each such set of items would constitute a scale. The scales were developed to assess amount of leisure time spent in athletic, domestic (female) - mechanical (male), aesthetic, social, scholastic, or passive-entertainment activities.

The six activity scales had not been validated previously, so the instrument was intensively analyzed to determine if the hypothesized activity scales were indeed comprised of the items developed for them. The responses, *R* (rarely), *S* (sometimes), and *O* (often), were given endorsement values of 1, 2, and 3, respectively. Responses to all 40 items were then intercorrelated and factor-analyzed by the principal-axes method with iterated communality estimates in the diagonal. A separate analysis was performed for each sex form of the test.

Six principal axes of those extracted were initially rotated to: (A) a varimax solution, and (B) a least-squares fit to the hypothesized factor structure. Both factor solutions indicated that our original hypotheses had to be altered considerably. While either solution for both sexes gave at least some indication of the dimensions of athletic, domestic-mechanical, aesthetic, social, and scholastic activities, no solution yielded any evidence for a passive-entertainment activity. Even more interesting was the fact that items designed to reflect passive-entertainment activities characteristically did not correlate with any dimension to a large degree, but correlated low with all of them.

The hard facts, reflected by the empirical data, led to a better understanding of the domain under investigation, and a consequent restructuring of the goals of the measuring instrument. The lack of emergence of even a trace of a passive-entertainment factor was taken as indicating that the concept was not a unique dimension, but rather the base activity, from which other activities were differentiated. It is almost as if passive entertainment occupies the neutral point on any activity scale, and in such a position cannot be isolated as a meaningful dimension by factor analysis.

Based upon the above interpretation, the hypotheses were revised to include only five dimensions. All 40 items of both male and female forms of the *L-T Picture Test* were once again factor analyzed and rotated for five factors. The least-squares solutions were interpreted according to our newly hypothesized dimensions, although the factors were not particularly clear or well-defined. Each item having a high or moderate correlation with (loading on) an orthogonal factor was scored with other similarly loading items that appeared to measure the same dimension to obtain a total scale score. This procedure assured us that reasonably separated constructs were measured and that the scales reflected them in the most efficient and unambiguous way.

Each of the scales for each sex was, in turn, separately evaluated for reliability by the computation of coefficient *alpha*, a measure of the homogeneity of each set of items. High *alpha* coefficients mean that the items are homogeneous (reflect the same construct) and that the constructs are reasonably stable psychological variables for theoretical and applied study. Table IV presents the number of items in and the reliability of each of the leisure-time scales.

TABLE IV. RELIABILITY ESTIMATES OF THE FIVE LEISURE-TIME ACTIVITY SCALES

	Number of Items		Sample Size		Reliability	
Scale Name	Girls	Boys	Girls	Boys	Girls	Boys
Athletic	6	6	629	727	.63	.58
Domestic-Mechanical	7	7	629	727	.67	.63
Aesthetic	6	6	629	727	.69	.71
Social	10	10	629	727	.54	.64
Scholastic	6	6	629	727	.67	.71

The *Picture Behavior Test* is a similarly experimental instrument designed to assess attitude toward four authority sources and responsible maturity in stress situations. Items presented situations wherein some response to an authority figure or stress situation was to be selected as characteristic of the examinee. The sets of items were designed to measure attitudes toward school authorities (3 items), legal authorities (2 items), peer authorities (4 items), parental authorities (5 items), and responsible maturity under stress (6 items).

The examinee could choose among four pictures to best characterize his typical response in each situation. The responses, ordered from least to most desirable, were: physical or emotional withdrawal from the situation with no effort to resolve the problem (1 point); hostility expressed physically, both violently and non-violently, but sometimes partially or temporarily resolving the problem (2 points); passive acceptance of the situation, allowing the problem to remain because of seeming powerlessness to effectively do otherwise (3 points); and positive adjustment, where the problem is dealt with effectively in such a way as to be deemed more "mature" (4 points). A female form of this test illustrated the situations with young women and girls, while the male form illustrated the situations with young men and boys.

The twenty item responses, scored as above, and based upon the pretest administration, were intercorrelated and factor analyzed to determine the underlying dimensions of attitude toward authority. A separate analysis was performed for each sex form. With iterated communalities in the diagonal, only two factors were supported, rather than the five hypothesized. Upon rotation, the two factors could not be unambiguously interpreted for either sex, so it was decided to retain only the first principal-axis factor as one dimension. The items scored for the test were the 17 items which loaded above .20 on the first extracted factor. This factor was interpreted as reflecting overall mature reaction to authority and stress situations. The scale was evaluated for reliability by use of the *alpha* coefficient. Since total score means and standard deviations were found to be equal for boys and girls, one *alpha* coefficient was computed. Data relevant to the *Picture Behavior* scale is presented in Table V.

TABLE V. RELIABILITY ESTIMATE OF THE MATURITY-AUTHORITY ATTITUDE SCALE

Scale Name	Number of Items Girls	Number of Items Boys	Sample Size Girls	Sample Size Boys	Reliability
Mature Reaction to Authority and Stress Situations	17	17	630	735	.69

It should be pointed out that the *Picture Behavior Test* is the instrument most likely to be subject to response bias. That is, the items are straight-forward in their deposition of the problem, and the alternative pictures are patently obvious in meaning. An examinee wishing to make a good impression could easily do so if he were aware of the rather basic societal evaluations of the alternative responses. The finding of one dimension representing most of the items for both sex forms suggests that a social-desirability bias may well have been operating. The test nonetheless was retained to evaluate the major hypothesis. Our reasoning followed this line: if the scale score undergoes significant changes during instruction, it will imply either real attitude changes on the part of the examinee, or else increased awareness of what types of behavior are socially desirable. Since either change, or both, would be desired as end results of this program, the scale was retained for study. Under this kind of situation, one need only guard against overly explicit interpretations of what changes might imply for the major hypothesis.

The five concepts rated on the *Semantic Differential* were included to measure general attitude to three major concepts: parents (parental authority), rules (societal authority), and self. Each adjective scale was evaluated for positiveness or negativeness (in the social-acceptability meaning of those words) and summed over all relevant adjectives for each concept. A total attitude to each concept was thus obtained.

The concepts of MOTHER and FATHER and of RULES were scored in the above manner, with the exception that the adjectives "big," "noisy," and "strong" were not scored for MOTHER, "big" and "noisy" were not scored for FATHER, and the adjectives "leader" and "noisy" were not scored for RULES. Exclusion of the adjectives was based upon the irrelevance of the ratings to the attitudes toward the concepts that were to be measured.

The correlation among total attitude scores for MOTHER and for FATHER was expected to be high, indicating that responses were made to parental authority figures and should be summed for a general attitude index, while RULES would be responded to as external societal authority.

The concepts of MYSELF and HOW I'LL BE were obtained in a similar way, summing the evaluated attitude endorsements over all adjectives for each concept. The total scores for the first concept were subtracted from those of the second concept to obtain self-ideal discrepancy scores to serve as generalized measures of satisfaction with the self.

Evaluation of art criteria. Art performance criteria included knowledge of art vocabulary and ability to produce an art product. The *Art Vocabulary Test* is very much like the vocabulary tests developed for preliterate children. In this case, however, the semantic content of all the vocabulary words were art related. Initial pretestings of this experimental test yielded tentative information about the general level of the test, which was found to have an adequate floor and ceiling; it yielded non-zero scores for the worst performer and no perfect scores, even for the very best performer.

The 96-item *Art Vocabulary Test* had been constructed to measure art vocabulary and to some extent achievement in art-related concepts in such a way that adequate coverage would range from the understanding of very simple art words such as names for tools and basic figural shapes, to more sophisticated concepts involving balance, perspective, and surface qualities, and concluding with abstruse aesthetic concepts like artistic styles or periods.

Since so large a population of items was administered to all examinees, the *Art Vocabulary Test* was item analyzed to eliminate all nondiscriminating items and all items appearing not to "belong" with the remaining set of items. Those items having positive correlations with the total score and falling anywhere in the total range of difficulty were scored. The odd-even reliability of the final test which was comprised of all the original items was estimated to be .88 (N = 1308), with a normal distribution of scores.

The criterion with more face validity was the *Art Product* test, where each student produced a crayon sketch of a manzanita branch. This criterion measure was not evaluated for validity as a criterion (i.e., how well it indicates overall achievement in the art course), but its reflection of that achievement seemed apparent.

The scoring of the *Art Product* test was essentially judgmental, each product being evaluated on five technical criteria by two trained judges. Since a measure of overall achievement was desired, ratings for each product were summed over all criteria. An additional reason for summing the five criterion ratings was the indication of non-independence among them. If each rating were to enter our hypotheses testing, dependence and overlap of coverage would necessarily have resulted.

The reliability of the judges, estimated by intercorrelating the independent judgments of the two raters over 961 pretest products, was found to be .73. This reliability estimate was considered to be adequate for the subjectively determined criterion.

II. EVALUATION OF CONTROLS

In the context of this research program, the term controls is used more generally than is commonly used in experimental design. In addition to considering those variables in the treatment that were to be controlled, variables inherent in the subjects and their teachers also had to be equated or accounted for.

Student controls. The variables that might contaminate our experimental design, and thus minimize our confidence in the meaningfulness of conclusions, included socio-economic status and sex of the students. Although the selection of students for each of the experimental and control groups was essentially random (students of randomly-selected teachers from various school districts), it was felt that possible nonequal influences should be detected if they exist and should also be accounted for in the tests of the major hypothesis.

Since these variables would not be expected to change due to instructional differences, measures of each were obtained for each subject during the early part of his participation. Socio-economic status of each student was assessed by the ranking of the occupational levels of the father. In cases where the father's occupation was not listed, or there was no father living in the home, the mother's occupational level was used. Ratings were normally distributed over the range of ten points.

Teacher controls. Interest was also directed at certain characteristics of the cooperating teachers in this study. Certainly, if teachers representing the various experimental and control groups were not completely counterbalanced in their teaching characteristics, but were different in aspects of their teaching excellence or performance, any changes in student development could be attributable to those differences. Such differences were to be described and accounted for in testing the major hypothesis.

Relevant measurable dimensions of teacher differences considered were: art training and experience teaching the disadvantaged (quantified by adding the number of units completed in art and ten times the number of years teaching the disadvantaged); ability to conceptualize teaching intentions (quantified by two-judge ratings of semester plans constructed during the orientation program, equated for control and experimental teachers by scoring on the basis of per cent of score possible under each teacher's condition, and evaluated for inter-judge reliability); utilization of information about the structure of art and the nature of the disadvantaged learner (quantified by scoring detailed self-rating questionnaires administered at mid-year and at the conclusion of the year, and summed. Three items concerned the use of information about the structure of art and 16 items were concerned with the use of information related to disadvantaged learners. Reliability was of the test-retest form.); and utilization of the special teaching media developed for this program (quantified by scoring 12-item questionnaires on the utilization of specific materials, the reliability of which was a test-retest form).

Due to the nature of this study, the effects of the first and second variables above were studied for all teachers except those in the non-art control group; while the effects of the third and fourth variables were studied for teachers of the experimental groups only. Table VI presents number of teachers employed, means, standard deviations, and inter-rater reliability estimates for the four teacher-control variables.

TABLE VI. NUMBER OF TEACHERS, MEANS, STANDARD DEVIATIONS, AND INTER-RATER RELIABILITIES OF FOUR TEACHER-CONTROL VARIABLES

Teacher-Control Variables	Number	Mean	St. Dev.	Rel.
Training and Experience with the Disadvantaged	23	114.35	56.78	---
Conceptualization of Teaching	23	53.52	12.53	.88
Utilization of Experimental Information	14	94.86	15.23	.93
Utilization of Experimental Media	14	71.14	6.09	.51

III. A NOTE ON METHOD OF STATISTICAL ANALYSIS

The multivariate methods of data analysis, which can evaluate statistical results with known exact probability density functions, that are commonly employed in research designs fall into two major families --fixed-model analysis of variance and multiple regression. The type of design of the research usually suggests which analysis should be used. If the design is one of "pure" research, where variables are actively manipulated and controlled and made orthogonal to each other in their effects so that different groups receive different, independent treatments, we draw our conclusions in terms of significance of differences in sets of means or mean differences; we can compute error terms and interaction terms; and can, in general, partition the variance of the effects into as many disjunctive sets as our experiment allows. If, on the other hand, our research is "soft," where control and manipulation are minimal and independent variables cannot be made orthogonal to each other, we resort to regression techniques, where we predict a criterion from a set of independent variables and then evaluate the significance of the predictive validity or the effectiveness of each or selected combinations of the predictors. Yet, although the research designs differ, the multivariate techniques which also appear to be different, are in fact equivalent.

Although this research program lies somewhere between the extremes of pure and soft research, such programs have been traditionally evaluated through analysis-of-variance techniques. Viewing the design in this light, the criteria are the variables being analyzed to determine what bearing the controlled conditions have upon them. Considering the 16 criteria, 16 fixed-model analyses of variance would be called for.

The conditions hypothesized to have some bearing upon differences in those criteria are called "main effects," while their combined bearings would be analyzed as "interactions." The conditions to be investigated (see Chapter II) are:

1. Pretest vs. posttest behaviors,
2. Art vs. non-art instruction,
3. Control vs. experimental art instruction,
4. Breadth vs. depth art instruction,
5. Sex of students,
6. Socio-economic status of students,
7. Amount of art training and experience in teaching the disadvantaged of the teachers,
8. Teachers' abilities to conceptualize what they intend to teach,
9. Teachers' utilization of information about the structure of art and the nature of the disadvantaged learners, and
10. Teachers' utilization of special teaching media.

The first condition is the time variable over which other conditions are hypothesized to have some effects. The second through fourth variables are essentially the nominal variations in the conditions of instruction, while the remaining six conditions are independent sources of variation, the first of which is dichotomous and the remainder of which are continuous variables.

The analysis of variance paradigm would, under a complete design, consider 10 main effects, and 931 higher-order interactions as bearing upon each criterion variable. Since each condition is at least dichotomous in nature (and only four really would be), the analysis of variance would have at least 2^{10}, or 1,024 cells in the ten-dimensional design. The fact, in this analysis, of unequal numbers of subjects under each condition, and worse, of empty data cells, confuses the picture beyond easy or even pleasant comprehension.

It was with those prohibitive possibilities in mind that it was decided to use the data analysis method that is equivalent to analysis of variance, but conceptually clearer, and, in this case, even more powerful--a multiple-regression method of evaluating the effects (relations) of the conditions (predictors) on the criteria. The only problems to be encountered using the multiple-regression techniques will be: (1) utilizing nominal data as predictors, (2) obtaining estimates of interactions, and (3) handling missing data.

Nominal-scale data as predictors. The instruction conditions (three modes, five variations: non-art control, art-control breadth, art-control depth, art-experimental breadth, and art-experimental depth) are the nominal scale data that must be entered into the multiple-regression analysis. Cohen presents contrast coding methods which, when utilized in multiple-regression analysis, will account for criterion variance and will have attendant F values precisely as if an analysis of variance had been performed (6).

In the case of coding the treatment conditions in this research program, four contrast codes are necessitated, as follows:

Condition	Code A	Code B	Code C	Code D
1. Non-art	-4	--	--	--
2. Art-control, breadth	1	-1	-1	1
3. Art-control, depth	1	-1	1	-1
4. Art-experimental, breadth	1	1	-1	-1
5. Art-experimental, depth	1	1	1	1

Code A contrasts the non-art from the art students for comparisons between those two conditions. Codes B and C, contrasting control and experimental art students, and breadth and depth art students, respectively, will be essentially orthogonal (uncorrelated) to each other due to their approximately equal N's, so that no artifactual between-condition correlations will be introduced. Code D is the product of codes B and C, and, as we shall see, will represent the interaction of control-experimental x breadth-depth. With such a contrast coding technique, one could obtain the prediction of a criterion as a function of one or any combination of conditions, and attach significance levels to them, providing that data was not systematically missing from any of the conditions. But a great deal of data is systematically missing, and this has determined the coding procedures reported above. But more of this shortly.

The first main effect, the effect of time interval between pretest and posttest, is also a nominal-scale phenomenon. For each criterion variable for each subject, a difference score was obtained by subtracting pretest scores from posttest scores. The difference scores, being on at least an ordinal scale, will represent the first main effect in the multiple-regression analysis. The shortcomings inherent in difference scores are, of course, not overcome in the analysis-of-variance design with two levels, although to many they appear to have been overcome.

Since the remaining conditions, with the exception of sex membership, are at least ordinal-scale data, and likely to be interval data, they need no specific attention to enter a multiple-regression analysis, presuming, of course, the lack of systematically missing data.

Obtaining estimates of interactions. The analysis-of-variance design usually calls for the testing of effects of interactions between and among conditions, regardless of the fact that the interactions must be partially dependent upon (correlated to) main effects, thus possibly "robbing" the main effects of their variance-accounting capacity at the same time that they reduce the error component, and also regardless of the fact that most interaction effects are not meaningful or interpretable.

Although all interaction effects can be evaluated through multiple-regression analysis, by generating new variables which are the products of the main effects, in this research program only two interactions were considered to be reasonably meaningful. The first was the interaction of the instruction conditions, control vs. experimental by breadth vs. depth, the interaction being given separate-variable status as code D. The second interaction was among relevant teacher variables (conditions 7 through 10), and would be interpreted as the influence of overall effectiveness of the teachers. Since there was reason to expect correlation among the four teacher "conditions," it was decided to include an appropriate teacher-effectiveness interaction into several of the analyses. For the tests of the experimental hypotheses, therefore, only two different interactions were to be considered or computed.

Handling missing data. Missing data occurred in this study in two different ways. First, some subjects were missing one or more scores on predictors or criteria due to non-systematic conditions; being absent the day one of the measures was administered or misunderstanding the test instructions. Since this data is nonsystematically missing, mean values for each person's missing data were assigned. If much data were nonsystematically missing, assigning of means would introduce error, or at least the regression effect, thus minimizing the chances of obtaining non-chance evaluations. In this particular study, the occurrence of missing data was sufficiently infrequent to make the assignment of group means an evil less than omitting all the subject's data and thereby reducing the sample to a less representative one.

The second way that data can be missing is systematically : the reasons are related to values on other independent variables. One example of this systematic missing of data concerns the non-art control-group subjects; since their teachers were not art teachers, it would be logically impossible to assign their teachers values related to the art-orientation program. Another example occurs within the art-control-group subjects. Since their teachers did not receive the experimental orientation regarding the nature of teaching the disadvantaged nor the special teaching media, they cannot have values for conditions 9 and 10.

Because for some subgroups there would be more data systematically missing than present, methods of statistically coping with the missing data were deemed inappropriate. The method of analysis selected to avoid problems of the missing data was to analyze the data in three ways, so that in each analysis there would be no systematically missing data. This method of analysis, incidentally, is parallel to what one would do in an analysis of variance if too much data were systematically missing. The three analyses are briefly described below.

In the first analysis, concern will center on the effects of art vs. non-art instruction (Code A). A simple two-variable prediction of each criterion variable, with predictors being Code A and sex, will demonstrate differences due to these forms of instruction.

The second analysis, in which concern will center on effects of experimental-control art and breadth-depth instruction, will be more complicated. The independent variables employed to predict effects in the criteria will be: (1) Code B, (2) Code C, (3) Code D, (4) sex of students, (5) socio-economic status of students, (6) teachers' art training and experiences with the disadvantaged, (7) teachers' teaching conceptualizations, and (8) "teacher-effectiveness" interaction. The results of this second analysis will test the major hypotheses developed for this study.

The third analysis will be concerned only with the effects of breadth vs. depth instruction in the experimental form of instruction, and will utilize the following predictors: (1) Code C, but only for students in the experimental form of instruction, (2) sex of students, (3) socio-economic status of students, (4) teachers' art training and experience with the disadvantaged, (5) teachers' teaching conceptualizations, (6) teachers' utilization of experimental information, (7) teachers' utilization of experimental teaching materials, and (8) "teacher effectiveness" interaction.

The variables entering the statistical analyses. Based on the rather complicated rationale of data analysis presented above, it seems wise to list the variables, in order, including all the independent variables (and their contrast codes), and the criteria. The variables and their codes are listed below, with coded values and exceptions in parentheses.

Predictors (independent variables)

1. Art vs. non-art instruction (Code A),
2. Control vs. experimental instruction (Code B),
3. Breadth vs. depth instruction (Code C),
4. Interaction of variables 2 and 3 above (Code D),
5. Sex of student (females = 0; males = 1),
6. Socio-economic status of students,
7. Teachers' training and experience with the disadvantaged,
8. Teachers' conceptualizations of teaching intentions,
9. Teachers' utilization of experimental information,
10. Teachers' utilization of experimental media, and
11. Teacher effectiveness (product of variables 7 and 8 for the second analysis and product of variables 7 through 10 for the third analysis).

Criteria (dependent variables, all in terms of pretest-posttest difference scores)

12. *Visual Speed,*
13. *Blocks,*
14. *Block Rotations,*
15. *Word Understanding,*
16. *Similar Groups,*
17. *L-T Picture Test - Athletic,*
18. *L-T Picture Test - Domestic-Mechanical,*
19. *L-T Picture Test - Aesthetic,*
20. *L-T Picture Test - Social,*

21. *L-T Picture Test - Scholastic*,
22. *Picture Behavior Test*,
23. *Semantic Differential* - attitude toward parents,
24. *Semantic Differential* - attitude toward rules,
25. *Semantic Differential* - self-ideal discrepancy,
26. *Art Vocabulary Test*, and
27. *Art Product Test*.

In the three reported correlation matrices in the next chapter, coefficients will be reported for the relevant interrelationships only.

CHAPTER IV. RESULTS

The multiple-regression procedure for analyzing the effects of the various student, teacher, and instructional conditions yields statiscial analyses in two ways. First, the first-order correlation coefficients between each condition and improvement in each criterion will be precisely similar in meaning (providing the relationships are linear) to F-tests for differences among subgroup means. If the correlation coefficient is significantly different from a correlation of zero, then the F-ratio would also be equally significant in its discrepancy from the null-hypothesized value of unity. As a specific example, if the r between non-art vs. art instruction and improvement in spatial visualization were significant at the .01 level, then it must follow that an F ratio or t-test between means of spatial-visualization improvement scores for the non-art and the art subgroups would also be significant at the .01 level.

The second analysis is that employing higher-order correlation coefficients (multiple Rs). When these coefficients are computed according to the criterion of maximum contribution to prediction of the effect from each set of predictors, the multiple R, when evaluated for significance, indicates which conditions *in tandem* significantly promote improvements in the effects.

I. THE CORRELATION MATRICES

Tables VII, VIII, and IX present the first-order correlation coefficients between all the relevant variables in each analysis. Those coefficients in the upper-right corners of the correlation matrices (marked off by broken lines) are the coefficients relative to the initial hypotheses. The remaining coefficients have little value and less direct relevance to the areas under investigation in this study.

Tables X, XI, and XII present the results of the multiple correlational analyses for all relevant variables in each analysis that significantly increase accuracy of prediction. That is, if two conditions, in tandem, significantly predict an effect, a third condition was not to be considered unless it, by itself, significantly increased the multiple correlation coefficient. F ratios are reported for the amount of variance accounted for by the significant predictors, for those more familiar with or confident of F statistics.

Rationale for test of significance. Before further discussion of particular results, one word of explanation is imperative. In Chapter I, the hypotheses this study was to evaluate were all stated in a positive direction; i.e., special instruction will result in greater

TABLE VII. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS FOR TWO "CONDITIONS" AND SIXTEEN "EFFECTS" DIFFERENCE SCORES FOR 989 NON-ART AND ART STUDENTS

Variable	Mean	S.D.	1	5	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1. Non-Art vs. Art Instruction	.37	1.66		-04	13**	-01	00	-05	04	03	00	03	-02	00	04	00	-04	-05	05
5. Sex	.53	.50	-04		03	01	04	-01	-01	08**	04	01	-03	-01	01	-08*	06	02	02
12. Visual Speed Improvement	.81	2.37	13	03		-02	04	-01	03	03	01	01	03	02	04	-01	-04	-02	00
13. Spatial Orientation Improvement	9.03	11.43	-01	01	-02		10	05	08	00	07	04	-01	01	-04	-02	-02	00	10
14. Spatial Visualization Improvement	1.20	3.04	00	04	04	10		02	-01	00	-02	00	-04	01	03	00	01	00	06
15. Word Understanding Improvement	.72	3.61	-05	-01	-01	05	02		07	-04	-02	-03	-05	00	-01	01	-02	-03	06
16. Similar Groups Improvement	5.19	7.99	04	-01	03	08	-01	07		07	02	03	08	03	-05	-02	-08	-04	04
17. Athletic Activity Improvement	.07	2.29	03	08	03	00	00	-04	07		26	26	20	15	03	-03	-02	03	-01
18. Domestic-Mechanical Activity Improvement	.25	2.55	00	04	01	07	-02	-02	02	26		24	17	26	06	-08	-07	-02	-01
19. Aesthetic Activity Improvement	.04	2.25	03	01	01	04	00	-03	03	26	24		14	29	06	-08	-02	04	-04
20. Social Activity Improvement	.36	3.15	-02	-03	03	-01	-04	-05	08	20	17	14		16	-05	-07	-01	-03	-01
21. Scholastic Activity Improvement	-.23	2.61	00	-01	02	01	01	00	03	15	26	29	16		10	-03	-06	02	03
22. Mature Reaction Under Stress Improvement	-.37	6.34	04	01	04	-04	03	-01	-05	03	06	06	-05	10		-04	-06	-04	06
23. Attitude Toward Parents Improvement	.35	6.98	00	-08	-01	-02	00	01	-02	-03	-08	-08	-07	-03	-04		17	08	01
24. Attitude Toward Rules Improvement	.14	6.81	-04	06	-04	-02	01	-02	-08	-02	-07	-02	-01	-06	-06	17		07	-06
25. Ideal-Self Discrepancy Improvement	-.53	5.73	-05	02	-02	00	00	-03	-04	03	-02	04	-03	02	-04	08	07		-03
26. Art Vocabulary Improvement	4.05	9.14	05	02	00	10	06	06	04	-01	-01	-04	-01	03	06	01	-06	-03	

Note. Decimal points omitted for correlation coefficients. Statistically significant correlations between conditions and effects are starred (* .05 level; ** .01 level).

TABLE VIII. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS FOR EIGHT "CONDITIONS" AND SIXTEEN "EFFECTS" DIFFERENCE SCORES FOR 865 CONTROL AND EXPERIMENTAL ART STUDENTS

Variable	Mean	S.D.	2	3	4	5	6	7	8	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2. Control vs. Experimental Instruction	.20	.98		10	-07	-03	-04	06	13	12	-01	08*	-04	03	03	-07	02	-04	-06	00	04	07*	-05	-01	08*	-03
3. Breadth vs. Depth Instruction	-.05	1.00	10		20	06	-08	02	04	03	07	10**	-03	-01	08*	-01	-01	03	-04	-02	-04	04	-03	03	05	-01
4. Instruction Interaction	.08	1.00	-07	20		02	-03	04	02	05	-03	05	-02	02	05	-01	-06	-01	01	-05	-07*	06	01	01	-01	03
5. Sex	.52	.50	-03	06	02		-01	-01	-05	-05	03	01	02	00	-01	09*	05	02	-02	-01	01	-08*	08*	01	01	-06
6. Socio-Economic Status	4.19	1.29	-04	-08	-03	-01		-01	-04	-03	-07*	05	-01	03	00	01	-01	-01	-03	04	-03	-03	01	-02	-05	02
7. Teachers' Training and Experience	22.50	11.11	06	02	04	-01	-01		21	93	02	05	01	03	-02	-01	05	04	-04	-01	00	-02	01	02	02	09**
8. Teachers' Conceptualizations	53.91	12.50	13	04	02	-05	-04	21		53	01	08*	01	-02	-01	-03	04	00	00	-02	-02	02	01	01	05	00
11. Teachers' Effectiveness Interaction	1,242.35	697.64	12	03	05	-05	-03	93	53		04	07	02	02	-02	-01	07*	04	-03	-01	00	00	01	02	02	08*
12. Visual Speed Improvement	.93	2.31	-01	07	-03	03	-07	02	01	04		-03	06	-03	02	01	03	00	03	02	04	-02	-04	-01	-01	-03
13. Spatial Orientation Improvement	8.97	11.54	08	10	05	01	05	05	08	07	-03		11	05	10	00	09	03	00	00	-04	-01	-01	-01	11	07
14. Spatial Visualization Improvement	1.20	3.01	-04	-03	-02	02	-01	01	01	02	06	11		03	-01	01	00	00	-06	00	03	-01	01	00	04	05
15. Word Understanding Improvement	.64	3.72	03	-01	02	00	03	03	-02	02	-03	05	03		09	-04	-02	-03	-05	-01	-01	01	-01	-04	06	-01
16. Similar Groups Improvement	5.33	7.81	03	08	05	-01	00	-02	-01	-02	02	10	-01	09		07	02	03	08	03	-05	-02	-09	-06	03	00
17. Athletic Activity Improvement	.10	2.33	-07	-01	-01	09	01	-01	-03	-01	01	00	01	-04	07		25	27	19	16	03	-06	00	04	00	06
18. Domestic-MechanicalActivity Improvement	.26	2.57	02	-01	-06	05	-01	05	04	07	03	09	00	-02	02	25		23	16	26	05	-10	-07	-03	-01	04
19. Aesthetic Activity Improvement	.07	2.31	-04	03	-01	02	-01	04	00	04	00	03	00	-03	03	27	23		14	30	08	-09	-02	04	-05	08
20. Social Activity Improvement	.33	3.13	-06	-04	01	-02	-03	-04	00	-03	03	00	-06	-05	08	19	16	14		15	-03	-10	-03	-05	-03	02
21. Scholastic Activity Improvement	-.23	2.62	00	-02	-05	-01	04	-01	-02	-01	02	00	00	-01	03	16	26	30	15		09	-04	-07	02	02	00
22. Mature Reaction Under Stress Improvement	-.28	6.28	04	-04	-07	01	-03	00	-02	00	04	-04	03	-01	-05	03	05	08	-03	09		-04	-06	-04	04	-01
23. Attitude Toward Parents Improvement	.35	7.12	07	04	06	-08	-03	-02	02	00	-02	-01	-01	01	-02	-06	-10	-09	-10	-04	-04		19	11	02	-01
24. Attitude Toward Rules Improvement	.03	6.79	-05	-03	01	08	01	01	01	01	-04	-01	01	-01	-09	00	-07	-02	-03	-07	-06	19		09	-07	02
25. Ideal-Self Discrepancy Improvement	-.64	5.73	-01	03	01	01	-02	02	01	02	-01	-01	00	-04	-06	04	-03	04	-05	02	-04	11	09		-03	-02
26. Art Vocabulary Improvement	4.22	9.26	08	05	-01	01	-05	02	05	02	-01	11	04	06	03	00	-01	-05	-03	02	04	02	-07	-03		05
27. Art Product Improvement	.65	3.28	-03	-01	03	-06	02	09	00	08	-03	07	05	-01	00	06	04	08	02	00	-01	-01	02	-02	05	

Note. Decimal points omitted for correlation coefficients. Statistically significant correlations between conditions and effects are starred (* .05 level; ** .01 level).

TABLE IX. MEANS, STANDARD DEVIATIONS, AND INTERCORRELATIONS FOR EIGHT "CONDITIONS" AND SIXTEEN "EFFECTS" DIFFERENCE SCORES FOR 518 EXPERIMENTAL ART STUDENTS

Variable	Mean	S.D.	3	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
3. Breadth vs. Depth Instruction	.03	1.00		07	-10	05	05	-11	-11	00	03	13**	-04	01	10*	-01	-06	02	-02	-06	-10*	09	-01	03	03	02
5. Sex	.50	.50	07		-07	-05	05	-06	-13	-07	-04	07	04	00	00	12**	04	00	-06	-03	-02	-08	06	04	-02	-06
6. Socio-Economic Status	4.15	1.25	-10	-07		02	-07	02	12	00	-10*	07	00	04	-06	05	03	00	-05	06	-02	-04	01	-05	-05	03
7. Teachers' Training and Experience	23.02	11.59	05	-05	02		27	-15	17	77	09*	04	04	00	-06	04	10*	06	-06	-03	02	-04	01	04	-01	11*
8. Teachers' Conceptualizations	55.26	11.97	05	05	-07	27		-40	-43	19	01	00	-03	-07	-09*	02	02	04	-03	-04	00	-03	05	09*	14**	07
9. Teachers' Use of Experimental Information	45.23	15.28	-11	-06	02	-15	-40		56	42	-12*	-01	-09*	07	00	-05	-06	-01	-03	01	05	02	-07	-01	-02	-14**
10. Teachers' Utilization of Experimental Media	71.77	6.43	-11	-13	12	17	-43	56		40	-04	09*	-09*	06	05	03	04	06	04	03	02	00	-12**	02	-04	-03
11. Teachers' Effectiveness Interaction	4,126,304.00	2,909,671.00	00	-07	00	77	19	42	40		01	05	-02	03	-07	01	05	06	-06	-03	02	-01	-02	03	04	03
12. Visual Speed Improvement	.92	2.31	03	-04	-10	09	01	-12	-04	01		-01	13	01	06	02	05	00	10	-05	06	-01	-05	01	04	-01
13. Spatial Orientation Improvement	9.74	10.94	13	07	07	04	00	-01	09	05	-01		09	04	06	05	09	05	-01	-02	-03	-01	-05	-09	16	06
14. Spatial Visualization Improvement	1.09	3.02	-04	04	00	04	-03	-09	-09	-02	13	09		03	00	-01	01	02	-07	00	11	02	-01	02	04	06
15. Word Understanding Improvement	.72	3.89	01	00	04	00	-07	07	06	03	01	04	03		06	-03	-01	-03	-10	00	-01	01	-03	-06	08	-03
16. Similar Groups Improvement	5.52	8.08	10	00	-06	-06	-09	00	05	-07	06	06	00	06		08	-02	04	04	03	-03	-04	-07	-02	04	-05
17. Athletic Activity Improvement	-.03	2.37	-01	12	05	04	02	-05	03	01	02	05	-01	-03	08		28	32	21	20	05	-04	00	05	-01	03
18. Domestic-Mechanical Activity Improvement	.30	2.71	-06	04	03	10	02	-06	04	05	05	09	01	-01	-02	28		24	15	22	09	-11	-08	01	-03	05
19. Aesthetic Activity Improvement	.01	2.45	02	00	00	06	04	-01	06	06	00	05	02	-03	04	32	24		11	33	13	-06	-03	09	-09	08
20. Social Activity Improvement	.17	3.08	-02	-06	-05	-06	-03	-03	04	-06	10	-01	-07	-10	04	21	15	11		17	-03	-08	-01	-03	00	00
21. Scholastic Activity Improvement	-.23	2.62	-06	-03	06	-03	-04	01	03	-03	-05	-02	00	00	03	20	22	33	17		12	-07	-05	06	00	-05
22. Mature Reaction Under Stress Improvement	-.10	6.37	-10	-02	-02	02	00	05	02	02	06	-03	11	-01	-03	05	09	13	-03	12		-01	02	03	-03	-01
23. Attitude Toward Parents Improvement	.74	7.00	09	-08	-04	-04	-03	02	00	-01	-01	-01	02	01	-04	-04	-11	-06	-08	-07	-01		22	08	04	02
24. Attitude Toward Rules Improvement	-.22	6.31	-01	06	01	01	05	-07	-12	-02	-05	-05	-01	-03	-07	00	-08	-03	-01	-05	02	22		02	04	07
25. Ideal-Self Discrepancy Improvement	-.70	5.57	03	04	-05	04	09	-01	02	03	01	-09	02	-06	-02	05	01	09	-03	06	03	08	02		-04	-06
26. Art Vocabulary Improvement	4.85	8.57	03	-02	-05	-01	14	-02	-04	04	04	16	04	08	04	-01	-03	-09	00	00	-03	04	04	-04		04
27. Art Product Improvement	.56	3.14	02	-06	03	11	07	-14	-03	03	-01	06	06	-03	-05	03	05	08	00	-05	-01	02	07	-06	04	

Note. Decimal points omitted for correlation coefficients. Statistically significant correlations between conditions and effects are starred (* .05 level; ** .01 level).

improvement in criteria. Directional hypotheses are known as one-tailed hypotheses, and they are statistically evaluated according to one-tailed significance levels. The statistics in this chapter are, however, all evaluated according to two-tailed significance levels. Employing such a procedure, of course, "loads the dice" against the preferred hypotheses, but it also allows for interpretation of evidence contrary to what was expected. As shall soon be seen, several statistical findings indicate not only that the original hypotheses are untenable, but that some of them are wrong--they predicted changes in the wrong direction. The two-tailed tests of significance allow for interpretation of those findings, and also for attempts to determine what underlay unexpected findings.

II. THE EFFECTS OF ART INSTRUCTION

Before it was possible to unambiguously evaluate the effects of specific variations in art instruction for disadvantaged seventh grade students, it was deemed important to investigate what values, if any, art instruction of any sort might have for such learners. It was with this need in mind that a non-art control group of students was studied for comparison purposes.

Comparing art and non-art groups. Table VII presents the results of the first-order correlational analysis based upon 124 non-art and 865 art students. Of the 15 coefficients relevant to the evaluation of the effects of art instruction, only one is significant at the .01 level. From this coefficient it is concluded that art instruction aids in the development of the visual speed and accuracy of the students, probably as an effect of increased exposure and practice with varied visual stimuli. Art instruction, by itself, appears not to have any other effects detectable by the criterion measures employed.

The subject-control variable of sex is significantly related to two effects. Among all the students, boys increase more in their athletic leisure-time activities, and girls increase more in positive attitudes toward their parents. It seems unlikely that the first effect is due to seasonal differences; it is probably more likely due to growth in differentiation of sex roles and socially appropriate masculine activities. The second effect probably reflects the faster social maturing of the girls at the seventh-grade level and being more compliant with parental controls.

III. THE EFFECTS OF SPECIALIZED INSTRUCTION

Table VIII presents the results of the first-order correlational analysis based upon 865 art students, of whom 347 were given "control" instruction and 518 were given "experimental" instruction. Of the 347 control students, 202 received breadth instruction and 145 received depth instruction. The number of students receiving breadth and depth instruction in the experimental group were 251 and 267 respectively.

2

TABLE X. MAXIMAL SIGNIFICANT MULTIPLE CONTRIBUTIONS TO INCREASES IN CRITERIA FOR 989 NON-ART AND ART STUDENTS

Increase in this Criterion	Is Significantly Associated with these Conditions[a]	Multiple Correlation[b]	F Ratio of Prediction
Visual Speed	Art Instruction (.131)	.131**	17.22**
Spatial Orientation	---	---	---
Spatial Visualization	---	---	---
Word Understanding	---	---	---
Concept Sophistication	---	---	---
Athletic Activity	Being a Male (.085)	.085**	7.09**
Domestic-Mechanical Activity	---	---	---
Aesthetic Activity	---	---	---
Social Activity	---	---	---
Scholastic Activity	---	---	---
Mature Reactions Under Stress	---	---	---
Attitude Toward Parents	Being a Female (-.075)	.075*	5.60*
Attitude Toward Rules	---	---	---
Ideal-Self Discrepancy	---	---	---
Art Vocabulary	---	---	---

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[a] Beta weights are given in parentheses and are for non-reflected variables.

[b] Coefficient is multiple R. When only one condition is associated with the effect the coefficient is the first-order r.

TABLE XI. MAXIMAL SIGNIFICANT MULTIPLE CONTRIBUTIONS TO INCREASES IN CRITERIA FOR 865 CONTROL AND EXPERIMENTAL ART STUDENTS

Increase in this Criterion	Is Significantly Associated with these Conditions[a]	Multiple Correlation[b]	F Ratio of Prediction
Visual Speed	Low Socio-Economic Status (-.072)	.072*	4.49*
Spatial Orientation	Depth Art Instruction (.096) and Teachers' Conceptualizations (.080)	.127**	7.08**
Spatial Visualization	---	---	---
Word Understanding	---	---	---
Concept Sophistication	Depth Art Instruction (.076)	.076*	4.95*
Athletic Activity	Being a Male (.087)	.087*	6.59*
Domestic-Mechanical Activity	Teachers' Effectiveness (.083) and Interaction of Control-Depth and Experimental-Breadth Instruction (-.068)	.095*	3.94*
Aesthetic Activity	---	---	---
Social Activity	---	---	---
Scholastic Activity	---	---	---
Mature Reactions Under Stress	Interaction of Control-Depth and Experimental-Breadth Instruction (-.073)	.073*	4.61*
Attitude Toward Parents	Being a Female (-.082)	.082*	5.83*
Attitude Toward Rules	Being a Male (.079)	.079*	5.36*
Ideal-Self Discrepancy	---	---	---
Art Vocabulary	Experimental Art Instruction (.083)	.083*	5.97*
Art Product	Teachers' Training and Experience with Disadvantaged (.091)	.091**	7.22**

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[a] Beta weights are given in parentheses and are for non-reflected variables.

[b] Coefficient is multiple R. When only one condition is associated with the effect the coefficient is the first-order r.

TABLE XII. MAXIMAL SIGNIFICANT MULTIPLE CONTRIBUTIONS TO INCREASES IN CRITERIA FOR 518 EXPERIMENTAL ART STUDENTS

Increase in this Criterion	Is Significantly Associated with these Conditions[a]	Multiple Correlation[b]	F Ratio of Prediction
Visual Speed	Teachers' Non-Utilization of Experimental Information (-.119) and Low Socio-Economic Status (-.101)	.155**	6.34**
Spatial Orientation	Depth Instruction (.142) and Teachers' Utilization of Experimental Media (.108)	.169**	7.61**
Spatial Visualization	Teachers' non-Utilization of Experimental Media (-.168) and Teachers' non-Conceptualizations (-.131) and Teachers' Training and Experience (.100)	.155**	4.20**
Word Understanding	---	---	---
Concept Sophistication	Depth Instruction (.101) and Teachers' non-Conceptualizations (-.092)	.134*	4.68*
Athletic Activity	Being a Male (.119)	.119**	7.43**
Domestic-Mechanical Activity	Teachers' Training and Experience with the Disadvantaged (.098)	.098*	5.02*
Aesthetic Activity	---	---	---
Social Activities	---	---	---
Scholastic Activities	---	---	---
Mature Reactions Under Stress	Breadth Instruction (-.095)	.095*	4.71*
Attitude Toward Parents	---	---	---
Attitude Toward Rules	Teachers' non-Utilization of Experimental Media (-.116)	.116**	7.09**
Ideal-Self Discrepancy	Teachers' Conceptualizations (.093)	.093*	4.53*
Art Vocabulary	Teachers' Conceptualizations (.136)	.136**	9.67**
Art Product	Teachers' non-Utilization of Experimental Information (-.190) and Teachers' Ineffectiveness (.000+)	.176**	8.27**

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[a] Beta weights are given in parentheses and are for non-reflected variables.

[b] Coefficient is multiple R. When only one condition is associated with the effect the coefficient is the first-order r.

Experimental and control group differences. Among the 128 coefficients relevant to the evaluation of the effects of the conditions, 12 are significant at the .05 level and 2 are significant at the .01 level.

From the first row of the coefficients within the matrix outlined by the broken line, it can be seen that experimental art instruction, taught by teachers who had taken the experimental six-week orientation program, results in greater improvement for the *Blocks* test, attitude toward parents, and *Art Vocabulary* test. Improvement in spatial orientation, reflected in the correlation for *Blocks,* may well have been caused by the experimental teachers' use of art media to particularly develop perceptual skills, a need dealt with at length during their six week orientation session. Improvement in attitude toward parents, in a like manner, is assumed to have been due to the experimental teachers' knowledge of the disadvantaged family situation and to the pride that the experimental materials engendered in the students--pride in the artistic achievements of minority adults, not too unlike their parents. Exposure to the experimental text and concentration on art terms also appears to have led to the improvement in art-vocabulary scores for the experimental students.

Breadth vs. depth. The second row of the outlined segment of the matrix presents coefficients relevant to the evaluation of the effects associated with breadth vs. depth instruction; whether of an experimental or control nature. Depth instruction, wherein the teacher concentrates instruction upon fewer areas of art and works in greater depth within those areas, apparently results in greater improvement in spatial orientation and in concept sophistication. These findings would imply that more intensive participation in art activities and consideration of art works within limited areas aids the student in manipulating images mentally and in forming conceptual hierarchies, and that these mental strategies are generalizable to our test situations at least.

Interaction of breadth and depth, and control and experimental instruction. In the third row, it can be seen that the instruction interaction has a significant effect upon improvement of mature reactions under stress. From the sign of the relevant coefficient, it can be seen that control-depth and experimental-breadth students are the benefactors on this criterion.

This may be a function of, at least for the experimental group students, the extra materials utilized in their classes. Under a depth-teaching situation there might be a tendency to deal with these materials in a more structured manner, thereby requiring greater teacher supervision which, in turn, would limit the student in terms of his opportunities to develop the self-reliance associated with increased maturity.

Control-depth teachers, lacking these materials, may provide just that measure of structure and supervision which allow students to assume responsibilities commensurate with their level of maturity. Whether or not this rationalization is valid will, of course, require further empirical study.

Girl-boy variations. The effects associated with sex membership are presented in the fourth row of the matrix. While being a girl is related to greater improvement in attitude toward parents, being a boy is related to greater improvement in athletic activities and in attitude toward rules.

The first two relationships were discussed previously in the section dealing with the comparison between art and non-art groups. As far as boys improving in their attitude toward rules is concerned, one can only speculate that boys in our art control and experimental groups were apparently impressed with the elaborate rules they were required to follow in responding to our ten criterion measures, especially the pre-post drawing exercises (non-art control students did not participate in the art product test); and that they, consequently, responded more favorably than boys would generally, since seventh grade males are usually not very fond of rules.

Socio-economic status. From the fifth row of the matrix, it is apparent that among the low socio-economic students, greater improvement in visual speed and accuracy can be made. No other criterion effects are related to socio-economic status. With a large segment of the present sample of students being of the lower socio-economic levels, it would appear that greatest success can be made at the more basic cognitive levels. Where improvement of higher-order behaviors is desired, apparently more time and effort will have to be expended than were employed in this study. Evidently, even greater intervention is required at this level if significant changes are to occur.

Teachers' training and experience. The art training and experience in teaching the disadvantaged of our teachers is associated with significantly greater increases in performance on the *Art Product* test, as evidenced by the coefficient in the sixth row of the submatrix. Since the two teacher aspects were summed for one measure, it would appear that teachers having both more training or greater art competence and more actual experience in teaching disadvantaged students or a "feeling" for how to "get to" them, can better promote achievement in the "doing" aspects of their subject.

Teacher planning. How well teachers can conceptualize what they intend to teach is associated with greater improvement in spatial orientation. And, as will be discussed later, teacher planning ability is also highly correlated with improvement in art vocabulary test scores (Table IX, Column 26). One can also examine Column 13 in Tables VII and VIII and note that spatial orientation is significantly related to performance in art vocabulary and drawing skill for both our art groups. While it has already been established that art abilities and spatial aptitudes are correlated (17), it is not clear, as yet, how the teachers' ability to conceptualize is related to the development of spatial orientation aptitude. The clarification of this relationship awaits further study.

Teacher effectiveness. The overall effectiveness of the teacher is significantly associated with the effects of greater improvement in domestic-mechanical activities and in art production. It would appear that teacher effectiveness plays a role in bringing about increased interest in at least some types of active leisure time involvement. The second finding, of course, confirms the notion that more effective art teachers are more able in teaching students to produce art works; a finding that coheres with common sense, and which also provides empirical support for the necessity for teachers of art to have an adequate background in their subject.

IV. RESULTS FOR THE EXPERIMENTAL GROUP

Table IX presents the results of the first-order correlational analysis based upon 518 experimental art students only, of whom 217 received breadth instruction and 261 received depth instruction. Among the 128 coefficients relevant to the evaluation of the effects of the conditions, 12 are significant at the .05 level and 5 are significant at the .01 level.

Breadth vs. depth instruction. Within the first row of the upper right submatrix, several coefficients reconfirm, within the experimental group, the significant effects found in the total art group. Depth instruction is once again associated with greater improvements in spatial visualization and concept sophistication, but breadth instruction in the experimental group is associated with greater increases in mature reaction under stress, a finding uncovered for the instruction interaction in Table VIII and discussed in the previous section dealing with the interaction of various forms of instruction.

Sex and socio-economic differences. Being a boy, once again, is found to be associated significantly with greater increases in athletic activities in the experimental group. The increases previously seen associated with being a girl are no longer significant among the experimental art group. Lower socio-economic status, once again, is found associated with greater improvement in visual speed and accuracy, as evidenced by the significant coefficient in the third row of the submatrix.

Teacher variables. In the fourth row, coefficients indicate three significant differential increases associated with the teachers' art training and experience in teaching the disadvantaged. As before, art production underwent greater improvement with more trained and experienced teachers. In addition, instruction under such teachers resulted in greater increases in visual speed and accuracy and in domestic-mechanical activities. Apparently, better trained and more experienced teachers are more able to provide relevant visual and manipulative activities which eventuate in greater visual acuity and interest in productive leisure time involvements.

Teachers' abilities to conceptualize how and what they will teach are significantly associated with greater increases in art vocabulary. It would appear that when verbal skills are the goals of art education, teachers might best obtain these goals through careful and thorough conceptualizations of what they intend to teach. However, such gains may be made at a price. At the same time that conceptually well-ordered teachers can increase learning of pertinent vocabulary, the coefficients in the fifth row of the submatrix indicate that they significantly decrease or hinder improvement in concept sophistication, at least as it is measured by our *Similar Groups* inventory, and self-ideal concordance as it is measured on our *Semantic Differential Test*. It may be that teachers, overly dependent upon well-organized lesson plans, fail to make their lessons sufficiently generalizable in terms of the criteria employed in our concept formation test. And they may also over-challenge their disadvantaged students in verbal ways that they are incapable of meeting.

The sixth row of coefficients indicates that teachers reporting greater utilization of experimental knowledge about the structure of art and the nature of disadvantaged learners are associated with students who make smaller improvements in visual speed and accuracy, spatial visualization, and art production. From the seventh row of coefficients in the sub matrix, it is evident that teachers' use of the experimental media is associated with greater improvements on spatial orientation, but smaller or negative improvements on spatial visualization and attitudes towards rules. Teachers' overall effectiveness, for the experimental art students, appears not to be associated significantly with any differential improvements in the effects.

The obvious inference which can be made from these findings is that teachers who are more capable of bringing about changes in their students' behavior rely less upon outside information and instructional devices than do less competent teachers. Or, stated in reverse, less capable teachers indicate their greater reliance upon information and instructional materials stemming from external sources than do more effective teachers (see negative correlation between variables 7 and 9 in Table IX). More experienced and better prepared teachers have already acquired many insights and instructional media that apparently do the job which is required.

This interpretation should not be construed, however, as a rationalization for more effective teachers without also emphasizing a need for the types of experimental inputs provided in this study. As can be seen by examining summary tables of the extent to which information and materials were utilized (Appendix C1), all teachers reported that information and media were used to quite an extent, but with some teachers relying more upon them than others.

V. INSTRUCTIONAL CONDITIONS ASSOCIATED WITH STUDENT IMPROVEMENT

To read Tables X, XI, and XII appropriately, the reader should rephrase his question from "What effects is each condition associated with?" to "What conditions, if supplied or capitalized on, would give reasonable promise of improvement in a specific effect?" The possible reasons underlying all the multiple effect improvements that have been discussed previously will not be repeated unless new light can be brought to the situation.

Visual speed. If the goal of an instructional program is to increase the ability of visual speed and accuracy as much as possible, then the students should be exposed to art instruction, of any sort. Students will profit most if they are from the lower socio-economic levels if they are art students, and will also profit most from being instructed by teachers who do not appear to rely too much upon the information designed for the experimental groups in this research project.

Spatial orientation. When increases in spatial orientation aptitude are to be maximized among art students, depth instruction will benefit them more than breadth instruction. Under either art instructional mode, teachers who have clear conceptualizations of what and how they will teach will have students who increase more. Among experimental art students, spatial-orientation improvement is further associated with teachers who do utilize the experimental media.

Spatial visualization. The aptitude of spatial visualization apparently can undergo significant improvement only under experimental art instruction, and then only among students taught by experimental instructors who do not overly rely upon experimental media and who do not necessarily plan too well, but who are well-trained and experienced.

General vocabulary. The multiple-regression analyses indicate that general verbal power is not increased among the disadvantaged to any greater degree by exposure to any sort of art instruction. Since the mean improvement scores for *Word Understanding* were small for all groups, the conclusion is that what is learned in art courses will not generalize, within the period of one semester, to a global verbal facility.

Concept sophistication. Greater concept-sophistication improvements are associated with depth instruction among art students, although art students do not differ significantly from their non-art controls. Moreover, among students receiving the experimental instructional mode, those taught by instructors judged not to have as clear a plan of what and how to teach appear to have experienced greater improvements in concept sophistication. Why this occurs is open to speculation. However, no reasonable explanation seems to be tenable at this time that would have a relevance for this study.

Leisure-time. Greater increases in reported leisure-time activities spent in athletic pursuits are associated with males, regardless of any variations of instruction, mode, or instructor.

Increases in domestic-mechanical activity are associated with teacher effectiveness and control-depth and experimental-breadth instruction, and, for the experimental group, with teachers' training and experience. It is possible that teachers who are experienced and effective in teaching the disadvantaged also have good rapport with them. They may seek to improve the student's relationships with his family by encouraging him to participate in more domestic or mechanical types of activities at home. There were no significant differential effects in the leisure-time activities of an aesthetic, social, or scholastic nature caused by the conditions under study.

Reactions to stress. Students receiving art instruction under control-depth or experimental-breadth conditions were found to exhibit greater increases in mature reactions to stress situations as depicted in our test. If the score for the *Picture Behavior* test was very subject to impression management by the students, then the conclusion of the multiple-regression study would imply that control-depth and experimental-breadth conditions are associated with greater improvement in ability to favorably manage one's personal impression.

Attitudes. Females, in general, appear to develop more favorable attitudes towards parents than boys do at this age among the disadvantaged. However, males taking art instruction develop more favorable attitudes toward rules, and, in the experimental group, more favorable attitudes toward rules is associated with a lack of teacher reliance upon experimental media.

Experimental art students taught by instructors who have clearer conceptualizations of what and how to teach, develop greater discrepancies between their ideal selves and their perceived selves. Examination of the mean differences of the discrepancy scores in Tables VII, VIII, and IX shows that for all groups, the discrepancies *decreased,* and this finding is desirable: the ideal self should not be too unlike the real or perceived self. The findings suggest that teachers who plan too well what and how they will teach, may rigidly impose too great an expectancy upon their disadvantaged pupils, thereby not helping them to learn to accept themselves and to set realistic personal goals.

Art vocabulary. Significantly greater increases in art vocabulary are associated with experimental art instruction, and particularly wherein the instructors have clear conceptualizations of what and how to teach. It seems reasonable to conclude that the training in the understanding of the disadvantaged learner and in the structure of art has beneficial results in learning art vocabulary, particularly when the teacher is verbal in his conceptualizations, and therefore, presumably in his instruction.

Drawing skill. Among all art students, significantly greater improvement in rated art products is associated with the art training of the teacher and his experience with the disadvantaged learner. It is, not unexpectedly, the well-trained and experienced teacher who can best obtain immediate and specific performance improvements from his students. Teacher characteristics associated with greater art-product improvement among the experimental-art students include non-reliance upon the experimental information and general geacher ineffectiveness.

VI. THE CONCURRENCE OF RESULTS WITH HYPOTHESES

The stated hypotheses and related questions this study sought to investigate can be found on pages 15 and 16 of this report. The extent to which our hypotheses correspond to our findings, and the answers this study provides to our questions, are discussed in the concluding sections of this chapter which will also serve as a summary of the findings.

The value of a special program. The basic hypothesis of this study asserts that an art program specifically designed for disadvantaged youth should prove to be of benefit to them. The program developed for this study was made available to students in our experimental groups. Our findings indicate that, as a consequence of having teachers who were oriented about the nature of disadvantaged learners and the structure of art, and of being provided with special kinds of visual and text materials, students in the experimental group made significant improvements in the following areas, when compared with art students who were not exposed to these "inputs": spatial orientation aptitude, attitudes toward parents, and increased knowledge of art vocabulary.

Significant changes did not occur in any of the other aptitudes or attitudes hypothesized to be amenable to change through a special program. Nor did significant changes occur in the control group classes which functioned without any of the information or materials developed for this study.

The value of a depth program. It was also hypothesized that a "depth" approach to the teaching of art should prove to be more valuable for the disadvantaged learner than the exploratory, breadth program typically provided for seventh graders. Both the art control and experimental groups were taught under these programs. It was found that a depth program is more successful in facilitating growth in spatial orientation aptitude and in increasing abilities to formulate more sophisticated concepts. The breadth approach was only related significantly to improving mature reactions to stress conditions, and only within the experimental group.

The importance of the teacher's background. In regard to the question, what is the magnitude of the relationship between student development and the teacher's art training (in terms of units of art acquired) and years of experience in teaching the disadvantaged? the findings were as follows. For both control and experimental groups, teachers with more units of art and more years of experience in teaching the disadvantaged were able to develop significantly greater aptitude for producing art as measured by our art product test. And, within our experimental group, such teachers were also more able in furthering growth in visual speed and accuracy, and in increased interest in domestic-mechanical leisure time involvements.

The teacher's ability to conceptualize. Our findings indicate that the relationship between student development and the teacher's ability to formulate adequate plans for what they intend to teach is manifested, for both art control and experimental groups, in increased spatial orientation aptitude; and, for the experimental group, in a very significant improvement in the development of an understanding of art vocabulary. However, for the experimental group, teacher planning abilities are negatively correlated with concept forming aptitude and developing a greater concurrence between one's ideal and self images.

Utilization of information. The question concerned with the relationship between student development and teacher reports of their utilization of information about the disadvantaged and the structure of art is applicable only to experimental group teachers. Our findings indicate that visual speed and visual orientation aptitudes, as well as drawing skill are all negatively correlated with the extent to which teachers reported their reliance upon the information provided for this study.

Utilization of media. Text, visual materials, and pre-cut mats were only provided for experimental group teachers. The extent to which student development is related to their reports of the use of these materials is indicated in the following findings. Use of experimental media is positively correlated with developing spatial orientation aptitude, and negatively related to developing spatial visualization aptitude and attitudes toward rules.

A summation of this entire study and the conclusions these findings have generated are provided in the final chapter of this report.

CHAPTER V. SUMMARY AND CONCLUSIONS

This study was initiated primarily to investigate how art education practices might be marshalled to affect productive changes in perceptual, cognitive, and attitudinal styles, and art aptitudes of disadvantaged youth.

I. REVIEW OF THE STUDY

Disadvantaged learners were defined as students who come from out-of-school environments wherein habits of behavior are acquired which impede, rather than facilitate, the assimilation of the skills, knowledge, and instrumentally valuable patterns of thinking which formal education is capable of developing.

The magnitude of the problem. Such learners appear to be the product of sub cultures which differ from the norm racially, ethnically, and economically. Demographic data suggest: (1) that the culture of poverty is extensive, it includes almost 12 per cent of the white and over 40 per cent of the non white population; and (2) that this nation is best characterized by the concept of cultural pluralism, many and varied sub cultures maintain differences which are manifested in variations in behavior.

Because of the numbers of children and youth who are the products of culturally different environments, it is essential that the educational establishment, which includes art education, investigate ways to meet the challenge of teaching those who presently do not benefit from schools which operate on the basis of middle class, white-Anglo norms and assumptions.

Reviewing the literature. A review of the few studies in art education which relate to this issue, reveals that there is a dearth of information concerning how art education curricula might be altered to deal with the needs of disadvantaged learners. As a consequence, only the findings from other descriptive studies which define the psycho-sociological syndrome associated with being educationally disadvantaged could be utilized as the bases for formulating the hypotheses this study sought to investigate.

From a review of these descriptive studies, it was hypothesized that art education practices should be potentially capable of contributing to productive changes in important perceptual, cognitive, and attitudinal behaviors which appear to affect the in-school performance of disadvantaged students. On the basis of information derived from these studies, it was also hypothesized that a depth program should be more productive than an exploratory one in bringing about such changes.

Delimitations of this investigation. Criterion measures were acquired or developed which were designed to provide information in relation to the areas under investigation. In the perceptual realm, visual speed, spatial orientation, and spatial visualization instruments were utilized. Cognitive tests included a general vocabulary test, a picture art vocabulary test, and a concept sophistication scale. Attitude scales inquired into alternative uses of leisure time, reactions to stress situations, and concurrence with ideal and self images. A drawing aptitude test was developed to acquire an estimate of productive abilities.

This study was limited to seventh grade art classes because in Southern California this is typically both the first time students work with an art trained person over a sustained period, and the one time art is a required subject to be taken by all students.

Experimental design. During the Spring of 1967, experimental and control group teachers working in schools eligible for Title I funds were randomly selected. They participated in orienting sessions during the following Summer and were provided with an opportunity to develop a breadth and a depth semester plan to be utilized during the 1967-68 school year. In addition, experimental group teachers were provided with information about the nature of disadvantaged learners and the structure of art, an experimental student text, two and three dimensional reproductions, and pre-cut mats.

During the 1967-68 school year, teachers implemented the semester plans they had developed as a result of the orienting sessions. The ten criterion measures developed or acquired for this study were utilized in a pre-post testing program with a term's work separating the administration of the tests.

Pre and post tests were also administered within several comparable seventh grade non-art classes to acquire an estimate of the value of art education experiences, per se.

Results. An estimate of the reliability of our criterion measures was based upon correlations computed utilizing pre test responses. Reliability estimates ranged from .51 to .88.

In regard to the hypotheses of this study, significant differences between pre and post test scores proved to be associated with the following relationships: (1) experiences in a seventh grade art class develops aptitudes for making rapid and accurate visual discriminations, and the lower one's socio-economic status, the more improvement will be made as a consequence of taking an art class; (2) studying with a teacher who learned about the disadvantaged and the structure of art, and who was also provided with special materials resulted in greater improvement in spatial orientation aptitude, attitude towards parents, and knowledge of art vocabulary; (3) the depth approach to teaching art results in greater improvement in spatial orientation aptitude and in abilities to formulate more sophisticated concepts, while the breadth approach is associated with developing more mature attitudes toward stress situations; (4) teachers with more units of art and more years of experience in teaching the disadvantaged were able to bring about more improvement in the ability to produce art, and, within our experimental groups, such teachers facilitated growth in visual speed and accuracy, and increased interest in domestic-mechanical leisure time activity; (5) teacher abilities to formulate adequate lesson plans are related to increases in spatial orientation aptitude, and, in the experimental group, to an understanding of art vocabulary--for this same group, teacher planning abilities were negatively correlated with concept forming aptitude and developing a concurrence between one's self and idealized images; and (6) teachers who report they relied heavily upon the information and media provided for this study were least successful in bringing about improvements in perceptual and drawing aptitudes, and attitudes toward rules.

II. CONCLUSIONS AND IMPLICATIONS

The procedures and findings associated with this investigation provide an empirical basis for arriving at the conclusions spelled out in this final section of our report. The implications drawn from these findings which appear to have the most relevance for the field of art education are also dealt with in what follows.

The value of art education for the disadvantaged. From the findings of this study, it can be inferred that experiences in the art class can have an important role to perform in developing the visual sophistication of disadvantaged learners. Although being able to rapidly and accurately identify differences in shape, as measured by our visual speed test, is a comparatively low level perceptual aptitude, it is, nevertheless, a mental behavior utilized for making the great variety of visual discriminations required as one interacts with his physical environment, both in and out of school.

The finding that art instruction eventuates in increased aptitudes in visual speed and accuracy takes on increased significance because aptitude traits, per se, are difficult to alter, especially within the period of one term and at the seventh grade level. One wonders, to what extent such abilities could be developed if students were to be involved in a systematic art program from kindergarten through high school.

It was also demonstrated that students who improved most in their visual speed scores were from the lowest economic social strata. This finding parallels the one discovered in the *Coleman* study reported on by former Commissioner of Education, Harold Howe II; it was found that advantaged students are less affected by the quality of their schools and that it "....is for the disadvantaged children that improvements in school quality mean the most" (19:67).

Apparently, art experiences are most worthwhile for disadvantaged students as far as developing aptitudes for visual speed and accuracy are concerned. This was, however, the only variable significantly affected through providing art experiences within a typical format (as in the control group) or within art classes enhanced by our experimental "inputs." Evidently, these forms of intervention are insufficient for bringing about additional changes as measured by our various instruments. The necessity for greater effort becomes apparent if a significant contribution is to be made. Compensatory procedures will have to be developed which go beyond those developed for this study if the pernicious effects of the culture of poverty are to be overcome.

Some suggestion as to which approaches to follow toward the achievement of such a goal can be inferred by comparing the performance of our control and experimental *art* groups, and from examining teacher characteristics which appear to facilitate or inhibit appropriate changes in behavior.

The value of experimental inputs. In this study, experimental and control group art teachers differed only in that the former received information about the disadvantaged and the structure of art as well as specially prepared teaching materials. These differences resulted in greater increases in spatial orientation aptitude and knowledge of art vocabulary, and in improved attitudes toward parents. Since no significant improvements on these or any other dependent variables were achieved under "control" conditions, the obvious conclusion is that expending efforts and funds in orienting teachers and providing them with special materials has important values. And the implication to be drawn for the practice of art education is that an orienting seminar and the provision of extra non-consumable materials costing about seven dollars per pupil (which can also be used for other classes and over a period of several years) can make a significant difference in helping students acquire valuable behaviors.

Depth versus breadth. Another area where alterations in art curricula appear to make a difference is emphasizing ideas that are germane to the visual arts (the depth approach) rather than placing emphasis upon the manipulation of a variety of art media (the exploratory or breadth approach). In our study, experimental and control groups were taught under both exploratory and depth conditions. It was found that the depth approach was significantly superior to breadth procedures in forwarding improvements in spatial orientation aptitude, abilities to formulate more sophisticated concepts, and for the control group, mature reactions to stress situations. On the other hand, the breadth approach was superior, but only for the experimental group, in improving mature reactions to stress as measured by our picture behavior test. This latter finding does not appear to be as provocative as the former because it occurred only within the experimental group; and there does not seem to be a reasonable explanation for its association with either the experimental group or with a breadth approach to organizing art curricula (other than the speculative notions spelled out in Chapter IV).

The findings in support of the depth approach, however, appear to cohere with those found in other studies (2, 18) that also report significant changes in perceptual-cognitive behaviors as being more related to a depth oriented art curriculum.

To these pieces of evidence can be added the self report responses provided by our experimental and control group teachers cited in Table XIII. These art teachers reported their preferences concerning depth versus breadth after their orienting seminar, and after teaching either breadth or depth approaches; reports were made at mid-year and at the conclusion of the 1967-68 school year. The data in Table XIII clearly indicate that, while students would prefer the breadth approach, the teachers believe that a depth orientation is best suited to student needs, and that they would be most comfortable teaching within a depth framework.

The implications for art education practices that can be drawn from the foregoing findings seem to be quite clear. The evidence for asserting the validity of depth over breadth approaches in organizing art curricula appears to be growing. The notion that an exploratory curriculum is best suited to the needs of adolescents needs to be seriously questioned. To date, there does not seem to be any evidence experimentally derived which supports such a position. Our hypothesis stemming from the descriptive research on the disadvantaged concerned with depth vs. breadth, has been, at least, partially validated. And, without contrary evidence, it would appear to be clear that only a depth art curriculum will begin to eventuate in bringing about important behavioral changes.

Continuing to provide a manipulation-of-a-wide-variety-of-media program for the disadvantaged would be an instance of practicing one's profession without regard for the findings which have been generated by carefully controlled experiments; i.e., teaching without using available and reliable information to guide one's decision making. It would not seem to be too imprudent to assert that such a practice can only contribute to maintaining the status quo; perceptual and cognitive behaviors do not change under exploratory conditions.

Teacher characteristics and student improvement. The findings of this study suggest that there are many and varied relationships existing between student performance on our criterion measures and the art teacher's training, experience, ability to conceptualize, and utilization of experimental inputs. While several of these relationships cannot be easily rationalized, there are others which do indeed cohere with common sense, and which, further, add to the credence of our hypotheses as well as having important implications for the field.

It appears to be clear that well-trained and experienced teachers are required if changes are to occur in such important behaviors as visual speed and accuracy, and drawing skill. Teachers who are able to conceptualize clearly what they intend to teach are also most capable of developing an understanding of art vocabulary and spatial orientation aptitude. It is also clear that teachers who are most effective in bringing about improvements in their students tend to rely less upon media and information which they have not developed.

TABLE XIII. THE EXTENT TO WHICH TEACHERS REPORTED A PREFERENCE FOR EITHER BREADTH OR DEPTH TEACHING APPROACHES

	Art curriculum:								
	best suited to needs of disadvantaged			students will prefer			will be most comfortable teaching		
	after 6 week seminar*	after teaching BREADTH	after teaching DEPTH	after 6 week seminar*	after teaching BREADTH	after teaching DEPTH	after 6 week seminar*	after teaching BREADTH	after teaching DEPTH
BREADTH	6	10	8	17	13	12	8	6	6
DEPTH	17	10	12	6	7	7	13	11	14
DEPTH OR BREADTH	-	-	-	-	-	1	2	4	2
BREADTH/slow DEPTH/fast	-	-	1	-	1	2	-	-	-
N	23	20	21	23	21	22	23	21	22

* Two week seminar for control group teachers

All of these findings add up to the necessity for providing art teachers for the disadvantaged who really know their subject and are capable of spelling out what they teach. For such teachers, additional information and materials are not as important as the fact that they do possess both adequate training and background. This conclusion corresponds with those reported by former Commissioner Howe. He asserts that the quality of the teacher bears a strong relationship to student achievement; that a good teacher's impact on students appears to be greatest at higher grades; and, finally, "teacher quality seems to be significantly more important to the disadvantaged boy and girl than to the advantaged student" (19:67). Parenthetically, Howe also reports that disadvantaged students tend to wind up with the least capable teachers. Our findings provide additional evidence for asserting that if changes are to be brought about, disadvantaged students *must be taught* by well-trained, experienced, and effective teachers.

Further implications. In this study, there are several findings that appear to be contradictory. For example, the teacher's abilities to conceptualize are positively related to student improvements in understanding art vocabulary and developing spatial orientation aptitude, but negatively correlated with concept formation aptitude and developing a greater concurrence between one's self and ideal images. Therefore, further study is required along two lines of inquiry to explicate the sources for, and deal with, these and other contradictory findings.

First, research should be implemented which attempts to establish whether or not such relationships do indeed exist. And, second, additional investigations need to be launched which manipulate relevant experimental variables in the attempt to discover the means to develop some valued behaviors without contributing to the attrition of other important behaviors.

Finally, significant improvements gained as a consequence of taking a seventh grade art class over one term were limited to one dependent variable, visual speed. It is obvious that our attempts at bringing about additional improvements were insufficient. However, the findings stemming from comparing improvements between and within control and experimental art groups provide the basis for making, at least, an educated guess about what types of intervention would be most profitable for disadvantaged learners. Based upon this study, the following steps should be taken to facilitate greater improvements in appropriate perceptual, cognitive, and attitudinal behaviors.

Art teachers of the disadvantaged should be provided with a one year study fellowship and a reasonable material procurement budget. During their year of study they should: review research materials which inform us about both the nature of disadvantaged learners and the teaching strategies which appear to be effective in dealing with them; develop an in-depth art curriculum which is behaviorally oriented toward altering deficiencies associated with being disadvantaged; and acquire or construct visual and verbal materials--charts, reproductions, texts, information sheets, film strips, slides, etc.--that are related to improving important and relevant perceptual and cognitive behaviors while also developing productive attitudes toward self and society.

This study has demonstrated that the assumption that art education practices are profitable experiences simply because of their concrete, non-verbal nature is erroneous. The most salient insight this investigation provides is that it is the art teacher who is the key to bringing about behavioral changes in disadvantaged learners and not art, per se. Investing in aiding the teacher to acquire a thorough understanding of his subject and the disadvantaged, as well as the competencies and materials required to utilize such knowledge, should result in art education making a most valuable contribution to the formal education of children and youth who are economically impoverished and socially disadvantaged.

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APPENDICES

A1

CALENDAR OF EVENTS DURING THE SIX WEEK ORIENTATION SEMINAR FOR EXPERIMENTAL GROUP TEACHERS, JULY 24-SEPTEMBER 1, 1967

FIRST WEEK - 7/24 - 7/28

Monday - Introduction to Seminar; registration for unit credit; review of INFORMATION FOLDERS; discussion of All About Art and need for "suggestions" and examples of art from scrap; viewing examples of reproductions to be used in this study.

Tuesday - Review of "suggestions" and scrap art items; discussion of All About Art prior to its going to the printer; discussion of "Information Sheets", assigning works/artists to participants.

Wednesday-General discussion about the disadvantaged learner (utilizing Metfessel's summary) and the structure of art.

Thursday- Dr. Florence Diamond - discussion of the Pasadena Museum Study, its outcomes, evaluation and implications.

Friday - Participants engaged in individual research acquiring data for "Information Sheets".

SECOND WEEK - 7/31 - 8/4

Monday - Dr. June King McFee - "The Disadvantaged and Art", general discussion.

Tuesday - Dr. McFee - What are the art needs of the disadvantaged?

Wednesday-Dr. McFee - Speculation over the role of art in the education of the disadvantaged.

Thursday- Discussion of McFee's contribution; Dr. Eugene Grigsby in a slide lecture discussed the manifold manifestations of so-called primitive art.

Friday - Mr. Ruben Holguin - "The Disadvantaged Mexican-American Student and Art".

THIRD WEEK - 8/7 - 8/11

Monday - Review of Holguin's contribution; discussion of first draft of semester plans; first "Information Sheet" due.

Tuesday - Mr. Noah Purifoy - "The Negro and Art, and the Utilization of Found Objects".

Wednesday-Review of Purifoy's contribution; discussion of possible teaching aids.

Thursday- Distribution of exhibit materials.

Friday - Field trip to Watts Towers and Watts Summer Festival.

FOURTH WEEK - 8/14 - 8/18

Monday - Review of visit to Watts; discussion of semester plans for breadth and depth art programs; second "Information Sheet" due.

Tuesday - Reviewing of all "inputs" to date and how they might be incorporated in semester plans.

Wednesday-Analyzing possible semester plans concerning the educational needs of the disadvantaged, the structure of art, and breadth/depth formulations.

Thursday- Discussion of "The Structure of Art" as envisioned by seven "conceptualizers" and digested by the project director; initial semester formulations for depth and breadth programs due.

Friday - Discussion of initial semester plans and the needs for a more formalized definition of breadth and depth.

FIFTH WEEK - 8/21 - 8/25

Monday - Dr. Manuel Barkan discussed some of the critical issues confronting art education in the sixties; in responding to initial semester formulations, Dr. Barkan led a discussion toward a clearer definition of "breadth" and "depth".

Tuesday - Dr. Barkan - finalizing operational definitions for breadth-depth curricula; initiating discussion concerning a semester plan format that would provide a clear understanding of teacher intentions and how the "inputs" of this research project would be utilized.

Wednesday-Dr. Barkan - reviewing previous day's discussion to achieve clearer understanding of relevant concepts.

Thursday- Reviewing Dr. Barkan's contribution; working on the revision of semester plans; third "Information Sheet" due.

Friday - Participants worked individually on the plans for breadth and depth art curricula.

SIXTH WEEK - 8/28 - 9/1

Monday - Discussion of problems related to semester formulation for breadth and depth curricula.

Tuesday - Distribution of all testing materials.

Wednesday-Dr. Ralph Hoepfner, project evaluator, reviewed how the tests were to be administered and the nature of the teacher's involvement.

Thursday- Review of testing procedures; final semester formulations due.

Friday - Review of total project; reactions to semester plans; setting up dates for collection of completed tests, the distribution of All About Art and pre-cut mat boards, and a mid-school year meeting; responding to a brief questionnaire concerning art curricula.

A2

CONCLUSIONS FROM PREVIOUS RESEARCH FINDINGS WHICH WERE VALIDATED BY THE RESEARCH AND EVALUATION CONDUCTED BY THE STAFF OF PROJECT POTENTIAL, UNIVERSITY OF SOUTHERN CALIFORNIA

Newton S. Metfessel, Ph.D.
Principal Investigator

I. HOME AND FAMILY STRUCTURE

Children and Youth from the Culture of Poverty. . .

1. Typically have parents who do not have the language skills to enable them to foster their children's language and cognitive development. These children do not hear long sentences, or sentences with complex grammatical structure, or patterns of sequential sentences. This affects the development of these children in both receptive and expressive language abilities.

2. Typically come from homes where there is a sparsity of objects, such as toys and play materials of different colors, sizes and shapes. Generally the home has only one of something. Consequently the children receive little or no training in the concepts of color ("bring me the blue one"), directionality ("bring me the one on the left"), position ("bring me the middle one") or relative size ("bring me the small one").

3. Typically are crippled in language development because they do not perceive of the concept that objects have names, and, indeed, that the same object may have different names. This may be one of the major reasons why poor children have later difficulty in coping with instruction in reading.

4. Typically lack a family environment in which questions are asked or answered. Consequently, these children do not perceive of adults in general as people from whom you ask questions and receive answers, a fundamental postulate on which the school culture is organized.

5. Are typically disciplined by physical force. In the school culture discipline is invariably through reason (insight building) or deprivation of privilege. Since reason is generally not used in the poverty home the child has had little opportunity to build insights into the causes and consequences of his own behavior. In school settings he reacts to "reason" discomforted.

6. Typically have little encouragement of their fantasy lives. Middle class parents will generally accept a child's imaginary playmate, for example, and may even enter into imaginary play. The parent from the culture of poverty tends to remain neutral and on several occasions, in the instance of imaginary playmates, remonstrated their child for "lying."

7. Typically have parents working at jobs which require little education; this frequently gives the child the impression that school is not particularly important in terms of preparation for life.

8. Typically have had little or no out-of-school experiences which are translatable to the school culture. Out-of-school resources such as zoos, museums, libraries and exhibition halls were found to be unfamiliar to the majority of the children. Over half, as well, had never been to the Pacific Ocean, although it was less than twenty-five miles away.

9. Frequently have parents who are concerned that too much formal education may "spoil" their child. Anxiety about losing status in the eyes of their growing offspring as educational differences are increased is a particular manifestation of this concern.

10. Frequently have parents who feel that the family is pre-eminent over school attendance laws. Consequently, what is defined as truancy by the school may be viewed as a sign of loyalty by the parents. Also, the observed truancy of older brothers and sisters in situations not related to family welfare or family well-being contributes to patterns of poor attendance.

11. Frequently come from a home environment with such a paucity of objects that the child's conceptual formation development is adversely affected. For the purpose of the Project Potential research, concepts were defined as abstractions from things (concrete objects). This demands that a subject have concrete objects on which to build abstractions (identify similarities and differences) in order to generalize to new situations.

12. Frequently come from a home environment with such a paucity of objects that their level of curiosity is affected. One develops curiosity, generally, by having things to be curious about. Certainly the lack of curiosity affects both motivational patterns and the development of creative behavior.

13. Frequently have parents who communicate negative appraisals of the school establishment because of their own difficulties in coping with the school culture. By a process of horizontal acculturation in which the school goes into the home the vertical acculturation demanded by the school establishment is facilitated.

14. Frequently have parents who lack a basic understanding of the educative process to such an extent that the school is perceived as a place where "magic" occurs, e.g., the child learns to read, write, and spell. One of the major benefits of having parental participation in school programs, particularly preschool, is the eradication of this belief which occurs in inverse relationship to their understanding of the educative process.

15. Frequently have homes in which the physical environment mitigates against the development of listening skills. The home is frequently so noisy that the child learns to "tune out". This not only occurs in situations of yelling and screaming but also in the general noise level increased in cramped living quarters by such things as radio and television. The kind of television watched in the homes of the poor has little in it that is translatable to the school culture.

II. PERSONALITY AND SOCIAL CHARACTERISTICS

Children from the culture of poverty. . .

16. Typically are characterized by weak ego-development, a lack of self-confidence, and a negative self-concept. These conflicting feelings about themselves frequently result in exaggerated positive and negative attitudes towards others.

17. Typically have great difficulty in handling feelings of hostility through the use of words rather than force.

18. Typically have poor judgment because of their meager experiences; as they have had little experience in making large numbers of small decisions they are unequipped to make larger ones.

19. Frequently fail because they expect to fail which only tends to reinforce their feelings of inadequacy.

III. LEARNING CHARACTERISTICS

20. Typically have a cognitive style which responds more to visual and kinesthetic signals than oral or written stimuli.

21. Typically need to see concrete applications of what is learned related to immediate sensory and topical satisfactions. The use of nutrition period as a formal learning experience is of singular import here.

22. Typically learn more readily by inductive than deductive approaches. Learning experiences which move from the part to the whole rather than from the whole to the part are invariably more successful.

23. Typically persevere longer in a task when they are engrossed in a single activity. Only one task at a time should confront the child. These single experiences should be planned, carried out, and evaluated within a single day.

24. Typically have poor attention span. A teacher should not give instructions in sequence, such as, "First we do this, and then this, and then this." We have found these children will typically respond to the last thing that they have heard.

25. Typically have significant gaps in knowledge and uneven learning. Teachers have been conditioned that if a middle class child knows fact "A" it is highly probable that he will know closely related fact "B". With a child from the culture of poverty who knows fact "A" you cannot make the same assumption about fact "B".

26. Frequently end the achievement habit before it has begun. The cycle of skill mastery which demands that successful experiences generate more motivation to perform which in turn guarantees levels of skill sufficient to prevent discouragement, and so on, may be easily reversed in direction and end the achievement habit prior to its beginning. One of the major objectives of the pre-school, consequently, is the sequential attainment, by these children, of success experiences.

27. Frequently have had little experience in receiving approval for success in a learning task, an assumption on which the school culture is organized. Teachers should be sensitive to the fact that these children frequently perceive praise in context of evaluation rather than reward.

28. Frequently learn less from what they hear than their middle class counterparts.

IV. GENERAL SCHOOL RELATIONSHIPS AND CHARACTERISTICS

29. Typically are placed at a marked disadvantage in timed test situations. Clocks and watches have been characterized as "middle class gods". For children from the culture of poverty the concept of the "slow gifted" (Riessman, 1962) is tenable from the results of the present evaluation.

30. Typically use a great many words with fair precision, but not those words representative of the school culture. The child who says, "I'm going to 'carry' him home," is using a term alien to the school establishment but well founded in such well known songs as "Carry Me Back to Old Virginny," and the song line, "I looked over Jordan and what did I see, comin' for to carry me home." The role of the teacher is to explain alternative ways of saying things rather than one of rejection of the alien terminology.

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A3

SUMMARY OF STATEMENTS PROVIDED BY VISITING CONSULTANTS, SIX WEEK ORIENTATION SEMINAR FOR EXPERIMENTAL GROUP TEACHERS, JULY 24-SEPTEMBER 1, 1967

DR. FLORENCE DIAMOND, psychologist and evaluator of Pasadena Art Museum Study (7/27)

The Pasadena Art Museum study was based upon the assumption that everyone can participate in art experiences, and that its program of free exploration and individualized instruction was appropriate for all students regardless of their social or economic status.

After participating in the Museum's program over a period of approximately nine months significant changes in behavior on the part of 24 disadvantaged third graders was limited essentially to an increased willingness to cope with problems in comparison to a nonparticipating control group.

Conclusions from this study that have a relevance for the education of the disadvantaged: (1) it appears that the "smorgasbourd" approach is not appropriate; (2) a highly organized environment is essential to minimize confusion and distractions; (3) many appear to be "stimulus-bound", therefore, they should be expected to want to handle whatever exists within the learning environment; and (4) three-dimensional media may be most appropriate.

DR. JUNE KING MCFEE, Head, Institute for Community Art Studies, University of Oregon (7/31 - 8/2)

Art objects can be conceived as culture-carriers, they project images of the culture.

Doing something about the quality of the visual environment is one of the responsibilities of art education. We need to prepare future citizens who are visually literate.

We need to become acquainted with the "central tendency" of cultural groups; norms for behavior become part of the basis for our decision making.

Many of the disadvantaged are from rural areas and they need to learn how to live in an urban environment. A vast array of symbols needs to be understood; ethnic symbols as well as those found in the mass media and fine arts.

Students need to learn that ART IS THE MEANS BY WHICH ONE ENHANCES THE QUALITY OF HIS LIFE.

Art forms need to be related to students' immediate experience. Students need a controlled learning environment where opportunities for improvising and elaborating are provided.

An essential objective of art education is to facilitate increased independence of the mass media.

Art appreciation should be taught within a social context rather than an historical context; what is happening between the child and a work of art should be the prime consideration.

Students need to be encouraged to use their leisure time more constructively.

Students need to be taught directly why they are in school.

Students need to acquire a broader conception of the visual arts.

Students need to understand the difference between order and disorder.

Students need to learn how to look at the visual aspects of objects and not be limited to conceptual responses to objects.

DR. EUGENE GRIGSBY, Professor of Art, Arizona State University (8/3)

Art is employed in many societies to maintain cultural norms; a means of social control.

In so-called primitive art, the major influence upon the forming of objects was the physical environment, both visually and materially.

Ba Kuba masks were made from natural materials (seeds, palm fibers, goat's hair, and leopard skin), and beads and feathers acquired from traders from the East.

Although designs appear to be similar from tribe to tribe, meanings attributed to particular designs might vary widely.

African forms influenced many western artists. It was an auspicious time for such influence: Gauguin advocating going back to primitive, basic approaches and Cezanne's dicta to seek in nature the cube, sphere, etc.

Nolde and Kirchner studied African forms in the Dresden Museum.

Picasso, Vlamink, Matisse, and Braque collected African art extensively.

MR. REUBEN HOLGUIN, Office of Urban Affairs, Los Angeles City Schools (8/4)

Teachers should not feel sorry for the disadvantaged. They should, rather, display genuine concern for their students by challenging them educationally.

It is essential to accept all students regardless of their physical appearance.

The teacher needs to expend whatever time and materials required to encourage students to participate in the art class.

Students need to learn that art is not merely fun or play but, rather, that it is important work.

As far as many parents of the disadvantaged are concerned, art is of no consequence. They need evidence of what can be accomplished through art (one way is to locate former students who have gone on to make a living out of art). Parents and students need to realize that Mexican-Americans, as well as others, can also be artists.

Making art meaningful to the disadvantaged--its instrumental value, its economic implications--is extremely important.

A stereotype exists among many art teachers that Mexican-American children are "naturally good" artists.

Mexican-Americans appear to be of three types: newly arrived, second or third generation Americans, and the "Viva-Mexicano" (first and second generation Americans still very much concerned with Mexican tradition). Students reflecting these three different kinds of backgrounds are often found in the same classroom.

MR. NOAH PURIFOY, painter, sculptor associated with The Arts Joined for Watts (8/8)

Through art humans can affirm themselves.

Creativity is formulating order in our world; learning about 5,000 years of civilization and expressing reactions to it through the use of our sensibilities and intellect.

Producing art is a means for dispelling anxieties; art provides something to "grow-up behind" (what one produces is an extension of himself).

Junk art - art is anything put together to create order. Using materials that other human beings have used and discarded is an activity which relates most to man because the medium itself has been used for some human function. Junk needs to be transformed so that a statement is made that goes beyond what the junk object itself represents.

We need to know what particular art activities mean to the child.

DR. MANUEL BARKAN, Professor of Art Education, The Ohio State University (8/21 - 8/23)

Theorizing in art education has changed radically in the past ten years. We need to make more sense out of what goes on under the heading of art education. Objectives, means, and outcomes need to be clarified.

This experiment is concerned with examining (1) the means of teaching--inquiring into two alternative approaches, exploratory and concentrated art curricula, and (2) the outcomes of teaching as they affect socially and economically disadvantaged learners.

Hopefully, this experiment will provide clues and guides for teachers and other researchers. This is a period when we need fresh approaches to problems. Art education up until the late 50's was dominated by dogma. Today, we require a more thorough understanding of what we are trying to accomplish.

"Art activity" can be construed as making art, or talking or reading about art, or examining works of art.

Every work of art appears to possess the following qualities:

> Attention to a subject (portrait, nude, forest, etc.)
> or attention to a theme (Guernica)
> or attention to an idea about visual structure (Mondrian).
> Executed in some medium which is utilized
> in some way (the forming process).
>
> Assumes a particular form (sculpture, ceramics, painting) or a combination of forms (painted sculpture, etc.)
>
> Expresses some kind of a style or cultural idiom.

"Art has many faces", it is form, space, symbol, myth, illusion, reality, emotion, expression, and communication.

> Different kinds of relationships exist, e.g., form/subject, form/symbol, and form/medium.

The goal of the teacher: To help students discover how perceptions of events in their own lives can serve as a source for expression.

Students need models they approve of who are also involved in the arts in some way.

The content of teaching is directing attention to events and objects that can be utilized as sources for expression. The child needs to be moved from a concern with immediate and intimate events and objects to those events and objects in art which are implicitly related to his experiences.

Teacher activities: Directing attention, encouraging perception, talking about the kinds of visual data that are embedded with an event or object that can be verbalized, e.g., dealing with different line qualities, thick/thin, size, etc.

In the student-teacher dialogue, teacher's words serve as cues to perception and understanding.

Teachers need to know and get their students to know how to study ideas visually and how artists study ideas visually.

Alernative possibilities need to be attended to: By shifting perspective (fragment versus whole, eliminating or embellishing detail), or by trying out something another artist has used, or by starting all over again.

The teaching plan can be conceptualized as follows: What do you want to accomplish in terms of the subject and in relation to the needs of the disadvantaged? What concepts are most relevant to these objectives? What will the teacher do and what will students do toward accomplishing these objectives? What kinds of teaching materials--art media, reproductions, film, etc.--are required to aid in achieving objectives?

A4

SUMMARY OF RESPONSES TO A QUESTIONNAIRE ON THE STRUCTURE OF ART

The following is the project director's interpretation of responses to a series of questions organized to more clearly establish the nature of the structure of art. Respondents were contacted by mail and interviewed personally; they were asked to formulate their conception of the structure of art, and answer several related questions. The respondents are listed below in the order in which their responses were received.

Dr. Eugene F. Kaelin
Associate Professor of Philosophy
Florida State University

Dr. Hale Woodruff
Professor of Art and Art Education
New York University

Dr. Warren Anderson
Associate Professor of Art
University of Arizona

Hy Farber, Graphic Designer (taped interview)
Director, Hy Farber Associates
Los Angeles

Harold Cohen, Educational Director
Institute for Behavioral Research, Inc.
Silver Springs, Maryland

Hudson Roysher, Craftsman (taped interview)
Professor of Art
California State College at Los Angeles

Noah Purifoy, Artist, and Director (taped interview)
The Arts for Watts Exhibit
Los Angeles

The responses of these conceptualizers will serve as part of the materials used to orient seventh grade art teachers who will be conducting experimental programs for disadvantaged learners during the 1967-68 school year. The questions and responses, as digested and interpreted by the project director, follow. It should be noted that each respondent did not answer every question and that the last two questions were asked of only those conceptualizers who are practicing artists.

I. How would you define the phrase, Structure of Art?

Kaelin - The structure of art should be conceived as a communicative process including the artist, his work, and an appreciative audience (emphasis is upon perception of the character of media to develop more meaningful appreciation).

Woodruff-Ordering the aesthetic elements of color, form, space, value, and line into a visual whole which expresses the unique aim, idea, or intent of the individual artist.

Anderson-Constructive human endeavor that shapes means to ends through the manipulation of a medium that culminates in some unique form.

Farber - Ordering the visual elements in terms of the requirements of assignments and the nature of reproduction processes.

Cohen - The systematic, objectifiable means of creating a subjective response (to experience).

Roysher- An individual view of how form is organized, but with a primary concern for understanding the materials to be employed.

Purifoy- The creative application of skills and knowledge in the production of objects that are assigned the term "art".

II. What concepts related to this structure do you believe are most fundamental or basic?

Kaelin - The work of art (the organized sensuous properties; the represented ideas and images; the relationship between sensuous properties and represented ideas and images, referred to as total expressiveness) and the context of total expressiveness. This context is composed of discriminable elements which are related. Significance of the context: the felt quality of the fundamental relationships existing between the elements.

Woodruff-Structure is determined by the aim of the artist, it grows out of his purpose. This is an age of highly personal and individual types of conceptualization in art. Knowledge of how the visual elements function; e.g., color intensity, identifying qualities of space, value, etc.

Anderson-That art (1) is constructive, (2) possesses cultivated, expressive and clarified content, (3) evolves through a medium, and (4) culminates in a unique form.

Farber - Knowledge of the consumer, the market place, and the requirements imposed by particular reproduction processes, how the product is to be seen or sold; viewing time available.

Cohen - Experiencing natural phenomena and being able to describe functionally the existing reality; observation, recording, and analysis.

Roysher- Material/form relationships; the imposition of materials upon scale; form/function relationships; part/whole relationships; consciousness of the past.

Purifoy- For a thing to be art, it must be done for itself. Creativity is the act. Art is something that someone besides the artist approves of and calls "art".

III. What concepts related to this structure do you believe to be unique to particular branches of the visual arts?

Kaelin - Painting: color as form, the presentation of space as a relation between color patches. Sculpture: real space line as intersection of planes, relationship of masses; negative space, a balance of tensions between bumps and holes. Drawing: the ambiguity of a line, line as contour, quality, the trace of movement, represented space. Architecture: organization of masses with liveable negative space; the object as synthesis of outside and inside; living function most important element. Crafts: synthesis of form and function; subservience of "decoration" to the successfully functioning form. Art History: time nothing to do with determining the excellence of a work of art; proper function to locate, preserve, and catalogue the facts of art.

Woodruff-Painting: color as it exists with its concomitant elements of space, shape, value and texture. Crafts: material of primary importance, often dictates form or use of object; destined for some practical, decorative or ornamental use. Art History: understanding the function of the aesthetic elements in historical works.

Anderson-Painting: the exploration of space within the confines of a format, ranging in style from "pictorial" (illusory) to "pure" (arrangement of visual elements for their own worth). Sculpture: more nebulous space, exists as an actual volume, dependent upon the effects of light, which alters its appearance. Architecture: dependent upon a well articulated, premeditated plan, which is concerned with many external considerations (climate, terrain, purpose, cost, available materials, etc.); starting from whole (plan), moving from parts to whole (completed form) which cannot be viewed in its entirety; a time as well as a space art; can contain other forms of art (a form within a form). Crafts: more evidence of form than content; lack of intended content but frequently convey much about artist and his times; more reliant upon the inherent properties of the medium.

IV. What activities do you believe are of greatest importance in developing awareness and understanding of the structure of art?

Kaelin - Being open to the influences of the environment; responding to the qualities of objects as perceived. Experimenting with materials and gaining technical control over them to imaginatively order their qualities.

Woodruff-Three-dimensional construction utilizing various materials (clay, wood, paper, wire, etc.) to be followed by two-dimensional experiences. Seeking to achieve structural unity so that a thematic statement is formulated and achieved.

Anderson-Visual perceptual learning: recognition of the visual qualities in our environment as non-verbal communication; comparing visual with other art forms; understanding past-present roles of artists in our own and other cultures; recognition of a variety of content and styles; awareness of visual qualities in natural forms. Learning art-related behaviors: cultivation of the capacity for an aesthetic response; examination of opinions and values as a basis for art judgment; intutive development of resourcefulness and imagination; responding uniquely to art experiences. Visual organization learning: arranging the visual elements in relation to principles; being familiar with a variety of media and processes; experimentation with only one medium; visual expression of ideas, attitudes, and feelings; developing a sensitivity to the unique demands of each art form.

Farber - Overcoming stereotypes as to what constitutes art. Understanding that the fine applied arts are reciprocal influences on each other. View good contemporary design in architecture, furniture, and in the field of communication.

Cohen - Being confronted with stimuli that are constantly changing, and which need to be recorded, evaluated, and analyzed.

Roysher- Learning how various materials are fastened one to another, and how various structures are constructed.

V. What sequence of learning experiences, from the least to the most complex, would you prescribe to enable learners to acquire an understanding of structure of art?

Kaelin - Learning to respond to qualities in works, rather than historical data; learning to make surface discriminations (color-line, non-objective works, comparisons with other art forms); conceptualizing the relation of objects seen as ideas (this must be divorced from the significance of the surface used to present the idea or object); abstraction, or the recognition of theme attributable to artist's manner of constructing the surface.

Woodruff-Initially identify with material that can be most directly manipulated by the students through touching and weighing. It is more important to "sequence" concepts than activities.

Anderson-Nature of sequence dependent upon the particular group of learners. It is more important to be concerned about the relationships between parts (media, content, style, elements, and principles), to the whole (uniqueness of form), and the function of the constructive act to culture in general.

Farber - Dealing with the fundamentals of design and how to use the tools of the designer (drawing pen, ink, compass, transfer types, etc.); learning about the mechanical processes, such as typography; learning how to draw representationally is very worthwhile; knowing about contemporary culture, ranging from visual forms to economic conditions.

Roysher- Start with simple materials such as clay and deal with basic approaches, e.g., working in hollow forms. Modeling should come before carving.

VI. Are there certain works that you identify as being of singular importance to the evolution of the visual arts?

Kaelin - The significance of a work of art represents the discovery of perceptual quality on the part of a person manipulating materials, which is then communicated to others who are open to the influence of their environments. The proper aesthetic concepts are more important than knowing the history surrounding "masterworks" of art.

Woodruff-It is important to interact with original works, but no particular works need be singled out for special emphasis in the context of this project.

Anderson-Exemplars of aesthetic forms should be sought out in one's own environment, ranging in significance from examples of city planning to examples of ceramics and metalwork.

Farber - Because the field of graphic design is so new, and many thousands of pieces of work have been produced, people rather than works serve as exemplars in this field: Eric Nietzche, Will Burton, Paul Rand, Lester Beale, Saul Bass, and Leo Leonni, for example.

Cohen - "If you can teach young people to see the universe through a complete investigation of their human counterpart. . .and. . .the universal ecology which supports them, both natural and man made, then you create a human being who is capable of understanding the structure of art."

VII. What are the sources for your expressive works?

Roysher- Nature is a basic source of information and inspiration. Medieval forms produced by people who were directly connected with their materials are also a source of stimulation.

Purifoy- I produce art to dispel my own anxieties, for I am guilty for not making the world "better". I must justify my existence through being productive; I make an object I can see, and "grow up behind". Social protest and good and bad art are also motivators. The reactions of people to me and what I produce are important sources.

VIII. How do you function as your own critic?

Farber - Deadlines are an important variable affecting the nature of self-criticism, as are the requirements of the client, the market place, and the processes of reproduction. The compulsion to always produce something different also enters into the evaluation of my works.

Roysher- Analysis based upon how well the object created will function physically, liturgically, and aesthetically.

Purifoy- Elapsed time is a most important variable; an incubation period makes it possible to be more objective. By working on several pieces at one time, I can let what is happening on one of them provide insights into another.

A5

A LISTING OF QUESTIONS TAKEN FROM THE EXPERIMENTAL TEXT, *ALL ABOUT ART*

I. What Is Art?
   1. What is meant by the word VISION?
   2. How do the tools and materials used by artists make a difference in the way an art object looks?
   3. What is meant by the word COMMUNICATION?
   4. What happens to you when you are REACTING to an art object?
   5. When is a useful object also an art object?
   6. What does art have to do with our BASIC NEEDS?
   7. What is meant by the words MASS MEDIA?
   8. Where do we find art objects that are very old and very valuable?
   9. Why are art objects that we cannot use still valuable to us?
   10. What is the main difference between painting and sculpture?

II. Who Makes Art?
   1. What are some of the things done by artists called designers?
   2. What do designers need to know about when they are planning a functional object?
   3. What is the artist called who also makes the art objects which he designs?
   4. What are some of the purposes for which craftsmen make objects?
   5. When can a photographer also be called an artist?
   6. What does a photographer use to produce art?
   7. How does an artist TRANSFORM junk into art?
   8. Sculptors are artists who work with what kinds of materials?
   9. How many things you see every day can you name that were planned by people who might be called artists?
   10. Why can designers, craftsmen, photographers, and people who make things out of junk be called artists?

III. What Are the Sources for Art?
   1. What is meant by the word CULTURE?
   2. Why do art works made by artists in different parts of the world look different?
   3. What is a LANDSCAPE?
   4. In what ways can the materials used by the artist act as a source for his ideas?
   5. What is the word used to describe art that uses as its subject what appears to be impossible?
   6. What is the art called that uses dreams for its source of ideas?
   7. Why is art itself the most important source for the artist's ideas?
   8. How do functional needs influence what will be made by artists called designers and craftsmen?
   9. In what ways can art from other cultures affect the art of our culture?

IV. Why Is Art Important to You?
   1. What is there in an art object that does not appear in a non-art object?
   2. What happens if you only look at an art object and do not study it?
   3. Why must you concentrate on an art object?
   4. What are some of the differences between visual order and visual confusion?
   5. Why is it important to live in a visual environment that is well organized?
   6. Can you name several things or places in your own neighborhood that are well organized?
   7. Why should you learn how to make art?
   8. What three kinds of art objects would it be possible for you to make?
   9. How is it possible to make art out of scrap materials?
   10. What is the most important thing to think about as you are making an art object?

V. Why Is Art Important to Society?
   1. What can be learned about the past by looking at objects called art?
   2. Why is it important to know about the past?
   3. How can art objects you have made in the past help you to improve what you will make today?
   4. How does art make it possible for you to share experiences with other people?
   5. Why is it important for people to have many experiences that are the same?
   6. What can you learn from the art objects made by people who are very different from ourselves?
   7. Why is it important to understand the art made by people from other cultures?
   8. What does the term CREATIVE mean?
   9. Why are ORIGINAL works of art important to society?
   10. Where and how can you find art?

FORMAT AND EXAMPLES OF INFORMATION SHEETS PRODUCED BY EXPERIMENTAL GROUP TEACHERS TO BE USED WITH THE REPRODUCTIONS PROVIDED FOR THIS STUDY

Format for Teacher Information Sheets

All Information Sheets should include the following data:

I. The title of the work and year in which it was made; the name of the artist and the year of his birth and death.

II. Something about the particular work's formal qualities; i.e., how the visual elements appear to be ordered to achieve those qualities which are characteristic of the work.

III. Information about the social milieu in which the work and its creator existed.

IV. Some biographical data about the artist.

V. Bibliography (the sources of your information).

VI. Five questions about the particular work, phrased in student language.

Sample Information Sheet--No. 6

Sheep, Franz Marc, 1880-1916

This picture is restless and dynamic, pregnant with meaning. We see space illuminated by color and light; there are imbedded concrete symbols, which assemble into shapes that reflect the appearance of the animal. We see the symbol of the animal appear in blue, because the expression demands such spiritual resplendence. The blue becomes a spiritual link to the sign of heaven, a cathedral of creature forms in the great sweep of the world. The highly personal styles of Marc are derived from Fauvism and Cubism, and from Negro and post-Impressionist art.

Marc desired to crawl into the bosom of nature in that the early part of his development was accompanied by an attempt to place man in the environment of nature. Here we recognize quite clearly a reflection of Franz Marc's final, highly romantic intention, what he called the "underlying mystical design of the world", felt and reflected in man. What Franz Marc meant by that can be seen in his paintings. Their great theme is animals, for in Marc's vision, the entire life and being of animals seemed to be part of an existing natural order.

Born in Munich in 1880, Marc attended the Munich Academy of Art in 1900. In 1902-1903 he travelled in Italy and Paris, and stayed in Paris until 1907. In Munich in 1910, he met Macke and Kandinsky, the founder of Der Blaue Reiter, with whom he edited the yearbook of that name in 1912. Friendship with Robert Delaunay began at that time, who influenced Marc in the use of color. Franz Marc was killed in World War I, at Verdun in 1916.

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Haftmann, Hentzen and Lieberman, *German Art of the Twentieth Century*, Museum of Modern Art, New York, 1957.
Cheney, S., *A New World History of Art*, The Viking Press, New York, 1956.

Questions

1. What stands out very clearly in this painting?
2. Why could you describe this painting as a spiritual picture?
3. How has the artist combined artistic beauty with usefulness?
4. Does the use of color have an effect on the designs in the painting?
5. Which colors help you determine the shape and form of objects?

Sample Information Sheet--No. 28

The Lovers, 1923, Pablo Picasso, 1881-

This period in Picasso's life exhibits the artist's ambivalence toward the classical traditions in which he was educated. In the 1920s he spent much time with explorations into his later Cubism, and also experimented with large volumetric sculptural forms in paintings of the figure. This painting was created in the calm which followed World War I and the explosions of the first Cubist paintings. The artist had previously utilized African art and the classical tradition; however, this is Picasso's own classicism, not by any means a copy. From these two art forms, the artist had learned generalization by the reduction of detail, and the beauty of the human form in its linear aspect and in its volumetric relationships. The Lovers has the quality of a painting of a sculpture, its figures are large, serene and contained. His articulate line does not surround and imprison the figures but tells of the body's structure and facial expression. These rhythmic delineations make one focus on the painting's spatial relationships, allusions to depth and mood. The figures have the costume and wistful isolated identity of the Blue and Rose period circus performers. The colors have the transparent quality of watercolor rather than the substance of oils, which lends to the distant atmosphere. The areas of colors are well designed and form large, autonomous but integrated masses. The painting moves through a circular color wheel, red, violet, blue, green, yellow, with only a small unobvious orange. These colors are high-keyed in value and yet still contrast with the high modulations of the flesh-tones. While the gestures have a winding rhythm the painting is based on a strong composition; the exterior lines of the figures form an overall triangle set against the classical horizontal and vertical grid pattern. The tilt of her head is balanced by the vertical behind her and the angle of his is accentuated by the color-division diagonal behind. These gestures return the viewer's eyes to the entwined masses and do not lead them from the intimacy and tenderness in the pose.

Picasso, born in Malaga, Spain, was the son of an art teacher. He made his first drawings at 10 and held his first exhibit at 16. He studied academically (drawing from casts, etc.) in Barcelona and Madrid. In Paris at 19 he studied at the Louvre the works of Van Gogh, Toulouse-Lautrec, Vuillard, Degas, Renoir and the Impressionists. He became acquainted with poets, painters, and intellectuals. At 26 he was exploring Cubism; the Metamorphoses of Ovid and other classical themes followed as subjects of illustration. Incensed at the ruthless bombing of the Basque city of Guernica he produced a mural ranking with the timeless horror of Goya. At odds with the Franco government after World War II he moved to Vallauris in France. Since then his exploration continues into a "curvilinear cubism" and a brighter palette. He continues to be one of history's most prolific and stimulating artists.

Bibliography

Rowland, Benjamin, *The Classical Tradition in Western Art*, Harvard University Press, 1963.
Janson, H. W., *History of Art*, Englewood Cliffs, New Jersey, 1964.

Questions

1. Why do the colors fit the mood of this picture? Is this a quiet and gentle painting?
2. Are these people concerned with others or only each other?
3. Which parts of the picture are the most "clear"; why?
4. Do you think Picasso drew these people from real life or from memory?
5. Do these people wear our everyday clothes? What kind of people are they?

Sample Information Sheet--No. 24

The Flower Vendor, 1935, Diego Rivera, 1886-1957

Diego Rivera's paintings reflect the Mexico he loved, their tropical colors and bright-lighted outsize forms containing the sunny, strong, yet often pathetic history of that country, "this wretched yet exuberant land," as he termed it. The Flower Vendor, also known as The Flower Carrier in Xochimilco, expresses this as well as any single painting he did. An oil tempera on gesso panel, the colors vibrate with the sun, and the peasant, done in Rivera's typical large, bold, forms, shows the strength of the peasant, under an almost impossible load of flowers. On the surface almost childishly simple, or simplistic, it can be seen, upon examination, to be the work of a sophisticated and intelligent artist, who makes the center of the message fall where he wants it to fall. The strong diagonal line formed by the cloth strapped around the basket and carried through the shawl of the woman serve to tie man, basket, and woman together. This same diagonal is part of the severe contrast made by the counter line of the man's back and the dark basket, versus the light shirt. These counter-linear movements and value differences are reinforced by the thrust of the man's arms; all of these qualities focusing our attention upon the man and his impossible burden.

The artist Diego Rivera was a complex and controversial man, childlike in many aspects, but deeply sensitive and alive to everything which surrounded him. His paintings and murals range from the shallow propagandistic work he sometimes did for the Communist Party, to magnificent and moving epics about his people, such as the immense mural on the walls of the National Palace of Mexico. His life ranged from the apex of lionized acceptance by both the people and the government of Mexico, to ostracism and despair, when his works offended, usually through his outspoken atheism. He married four times, and was often the center of romantic scandals, yet all of the women who dealt with him declared him to be the most important figure in their lives, bringing a great sense of wonder and excitement about the world to all who knew him.

Rivera was born in Guanajuato, Mexico, in 1886, of respected and comparatively prosperous parents, and was well educated, studying at the School of Fine Arts in Mexico City, and in various schools and studios in Europe, from 1907 to 1909, and again from 1912 to 1921, most of the time on Mexican government fellowships. His talent was recognized early, and was encouraged by his parents. He was always able to sell what he painted, and he painted prolifically, but casual and excessive spending often kept him in near-poverty. His first wife, in common-law, was Angelina Beloff, a Russian emigre to Paris, who introduced him to many Russian artists, and reestablished his inherited and lifelong liberalism in politics.

In Paris, he met and worked with all the major artists of the time, being particularly influenced by the work of Cezanne and

Picasso. He adopted and altered Cubism into his own style, then moved on to a more expressionistic painting, shortly before he left Paris. Upon his return to Mexico, his final major change in style was formed from a re-adoption of traditional Mexican styles, joined with what he had learned in Europe. When he moved from painting to murals, size also became a major factor in his work. In Mexico he married Guadalupe Marin, his model, later divorced her and married Frida Kahlo.

Rivera joined the Communist Party in 1922, and was expelled as a "deviationist" in 1929. In 1931 he began the series of paradoxical paintings and murals for various American millionaires, including Dwight Morrow and Nelson Rockefeller. He painted a wall in the San Francisco Stock Exchange, the Detroit Institute for the Arts, and three walls on the facade of the RCA building in New York. All created great controversy because of their socialist content, and in 1934 the murals on the RCA building were sandblasted away.

These controversies cost him public favor, until 1943 when the Mexican government officially recognized him as one of her greatest artists and created a monumental 50-year retrospective exhibition. From then until his death he worked on the magnificent National Palace murals, sometimes in company with Jose Clemente Orozco and David Sequieros, who with him formed what is sometimes called "The Giant Three" of Mexican artists. After Frida Kahlo's death in 1951, he married Emma Hurtado in 1955. He died in 1957 at the age of seventy-one.

Bibliography

Feldman, E. B., *Art as Image and Idea*, Englewood Cliffs, New Jersey, 1967, pp. 40-42, 465-466.
Wolfe, B. D., *The Fabulous Life of Diego Rivera*, New York, Stein and Day, 1963.

Questions

1. What are the people in this painting doing?
2. How has dark and light contrast been used to get us to pay attention to what the people are doing?
3. What do you think about when you look at the man's hands?
4. Where do you find the roughest texture in this painting?
5. How does the color in this painting help to communicate the artist's message?

FORMAT AND EXAMPLES OF SEMESTER PLANS DEVELOPED BY TEACHERS OF EXPERIMENTAL AND CONTROL GROUPS

A7

An Example of Experimental Group Teacher's Depth Plan (Given Highest Rating by Two Judges)

Teacher__________ School__________ Breadth___ Depth x Week(s) No. 12 1/2-14

SEMESTER PLAN

	CONCEPTS	OBJECTIVES	ACTIVITIES		TEACHING MATERIALS	
			Teacher	Student	Tools/Media	Text/Repr.
THE STRUCTURE OF ART	Gesture drawing as a method to record a figure in action, and as a valuable drawing exercise.	Learning about gesture technique in drawing, and being able to use it to capture the feeling of movement in an action pose.	Figure Drawing Exercises (cont.) - (4) Drawing the figure in action poses (boxing, running, etc.).	Making a series of drawings of action poses, using quick gesture technique.	18x24 Newsprint Black crayons	
	The use of value (shadow) to achieve the appearance of volume in the figure.	Understanding the importance of being able to use differences in value to create the feeling of volume.	(5) Demonstrating how to draw a model, standing and holding a base ball bat. Demonstrate the use of value to create the appearance of volume.	Drawing the figure with the base ball bat. Applying what they learned about how to achieve correct proportions and the appearance of volume.	12x18 Manila paper Black crayons	Base ball bat Text 54-59 Repr. #17, 36, 39 and 35.
	Application of previous learning about figure drawing to several different poses.	Remembering previous learning relative to drawing the figure, and being able to apply it to drawings of the figure in several different poses.	(6) Allowing students to make drawings of several other poses related to their own activities and interests.	Making several drawings of interesting poses, using student models.		
STUDENT NEEDS	Figure drawing can be an important activity for learnings associated with development of mastery in (1) eye-hand coordination, (2) visual perception or discrimination, and (3) spatial concepts--their meanings and relationships.	Providing, through figure drawing, experiences that will foster growth in the areas of eye-hand coordination, visual perception, and spatial relationship perception.	Discussing the importance of being able to coordinate one's hands and eyes in drawing; i.e., to look carefully at what is to be drawn, and then drawing it. The students will receive practice in eye-hand coordination through the various drawings of models in different poses. These experiences will also develop visual perception and ability to see and understand spatial concepts and relationships.	Listening and understanding the meaning of the concept "eye-hand coordination". Realizing its importance in drawing and in other activities as well. Practicing drawing and improving in eye-hand coordination as well as in visual and spatial perception.		

An Example of Experimental Group Teacher's Exploratory Plan (Given Lowest Rating by Two Judges)

Teacher__________ School__________ Breadth X Depth___ Week(s) No. 7 & 8

SEMESTER PLAN

	CONCEPTS	OBJECTIVES	ACTIVITIES		TEACHING MATERIALS	
			Teacher	Student	Tools/Media	Text/Repr.
THE STRUCTURE OF ART	Explaining media makes it possible to learn of its varied possibilities.	To better understand painting, the nature and value of color.	Showing students how to make a color chart, asking them to discover other possible ways of making color.	Making a chart, experiencing the primary and secondary colors. Try to decide about colors you like and why. Why they make you look good.	12x18 manila brush watercolors	Repro. Marc Audio-Visual color wheel
		To help students better understand figure drawing, the importance of it, concepts and methods related to it. The concept of space and volume and how this can be realized through simple geometric form and shapes.	Demonstrating how to draw a house from memory and compare, see what was left out.	Drawing a picture of your front house from memory. Check and see how much you left out.	9x12 manila pencil	Text pg. 60-61
STUDENT NEEDS	Art is a verbal expression and communication.	To help students organize the visual elements so what they have to say is easily understood.	Requesting students to spend 15 to 1 hr. in a room all messed up arranging things together. Report to class. Draw a sketch of confusion, and re-draw a sketch of order. Paint.	Assuming assigned responsibilities.	pencil 9x12 manila crayons watercolors brush ruler	Text 62-63 Repro. Totem Pole

An Example of Control Group Teacher's Exploratory Plan (Given Highest Rating by Two Judges)

Teacher__________ School__________ Depth____ Breadth X

SEMESTER PLAN

WEEK NO.	OBJECTIVES	ACTIVITIES		TEACHING MATERIALS	
		Teacher	Student	Media/Tools	Ref/Repr
2 and 3	To explore more fully the study of lettering, particularly spacing and style.	Demonstrating and showing examples of lettering used in graphic art (especially advertising) stressing style as it relates to the message.	Participating in discussion with teacher. Bringing in examples (magazine) of lettering which help to convey a message.	Rulers Pencils Erasers 12"x18" manila 18"x22" tag board	Good advertising examples from magazines.
	To produce an art portfolio for student work with the students name on the front.	Demonstrating basic block lettering, spacing and lay-out techniques.	Practicing basic block lettering and spacing (alphabet and full name).		Lettering charts illustrating different styles of lettering.
		Giving individual help with different styles of lettering.	Folding large tagboard and sketching name on front.		Well-designed posters.
			Using colored pencil or ink to complete lettering.	India ink Ink pens Colored pencils	

An Example of Control Group Teacher's Depth Plan (Given Lowest Rating by Two Judges)

Teacher__________ School__________ Depth X Breadth____

SEMESTER PLAN

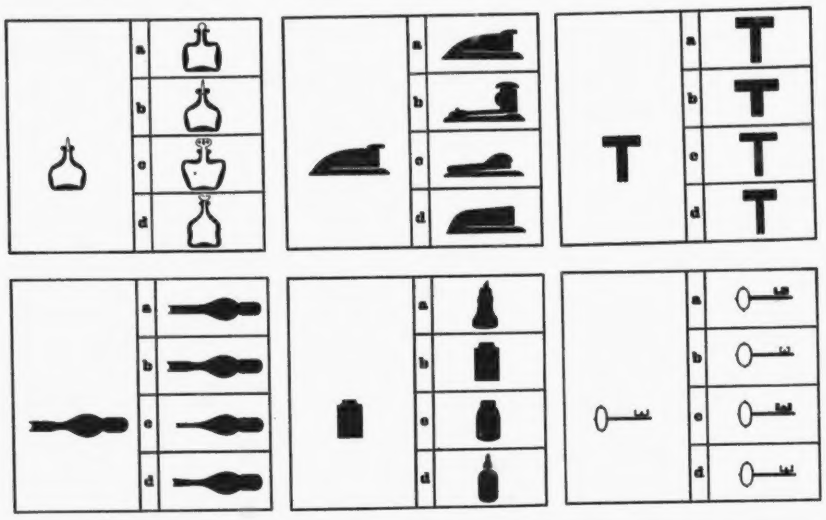
WEEK NO.	OBJECTIVES	ACTIVITIES		TEACHING MATERIALS	
		Teacher	Student	Media/Tools	Ref/Repr
5	To see how work of art can be presented by varying the stress on elements employed.	Discusses the possibilities of different presentations and what happens to interpretation.	Listens duscuss. Tries various approaches to visual presentation. Evaluates what happened with assignment.	Paper, paint, clay, wood Wire Chart	Assign: show art object in several approaches 2c and 3d
	Show: Variation in line: shape, color, value, texture, movement, pattern.				
	Evaluation of objects in terms of how they are changed by differing emphasis.	Discusses the effects of the changes upon object.	Listens, discusses and lists effects of changes upon object.	Chart Paper, paint clay, wood wire, glue opaque projector	Show clippings and drawing of variation in elements.

B1

SAMPLE ITEMS TAKEN FROM THE INSTRUMENTS USED TO EVALUATE STUDENT PERFORMANCE

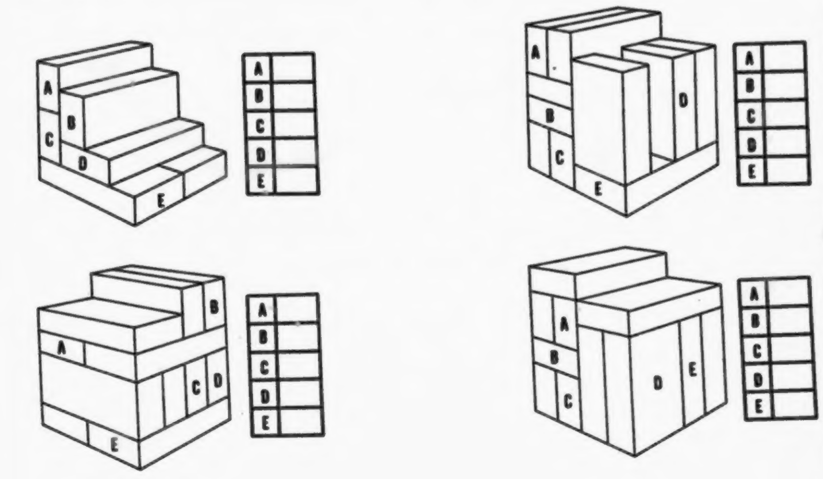
Sample items from the Perceptual Speed Test

Circle the letter of the picture that is exactly like the one on the left.



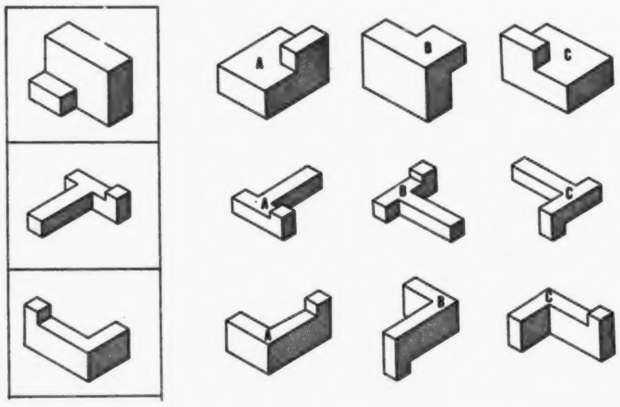
Sample items from the Spatial Orientation Test

Write the number of blocks that each lettered block touches.



Sample items from the Spatial Visualization Test

Circle the letter of the block that is the same as the first block.



Sample items from the Word Understanding Test

Circle the letter for the word that means the same as the given word.

GIVE
A. cook
B. donate
C. select
D. handle

BITTER
A. acrid
B. sweet
C. tasty
D. nice

TEACH
A. chalk
B. instruct
C. mislead
D. type

TRUST
A. esteem
B. encouragement
C. mobility
D. reliance

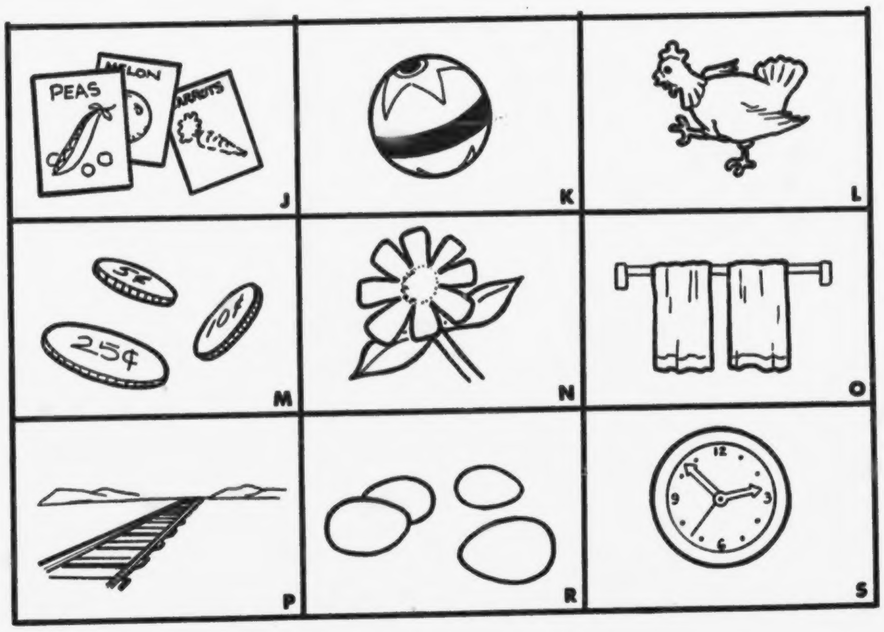
CLARIFY
A. liquify
B. satisfy
C. exercise
D. clear

USUAL
A. interesting
B. customary
C. uncommon
D. skilful

SATISFIED
A. content
B. full
C. excited
D. frolic

CALM
A. rough
B. idle
C. serene
D. pretty

An example of items in the Similar Groups Test



Make many different groups and write why they are alike.

Group 1: ____________________

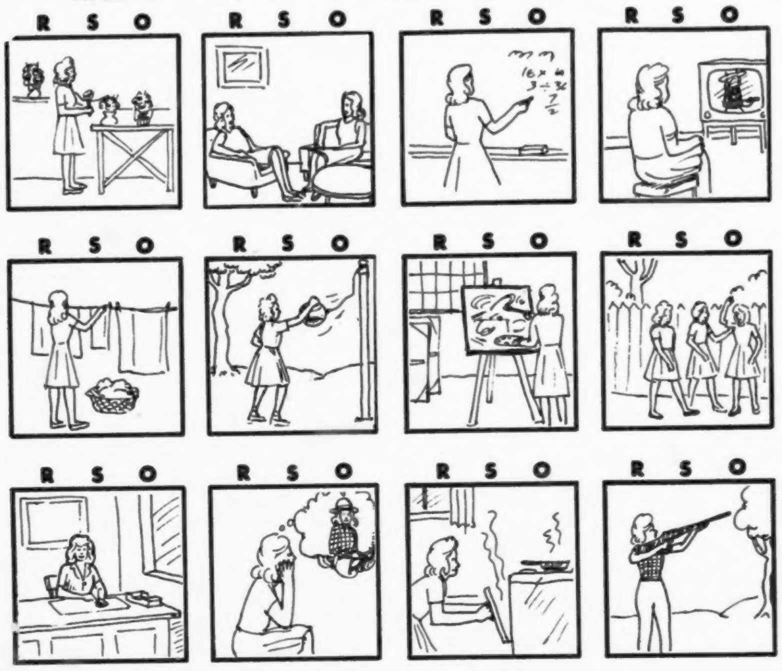
Why: ______________________________

Group 2: ____________________

Why: ______________________________

Sample items from the L-T (Leisure Time) Picture Test

Circle the letter that describes what you do in your spare time.
Circle "O" for OFTEN; "S" for SOMETIMES; "R" for RARELY.


R S O
R S O
R S O
R S O
R S O
R S O
R S O
R S O
R S O
R S O
R S O
R S O

An example of items in the Semantic Differential Test

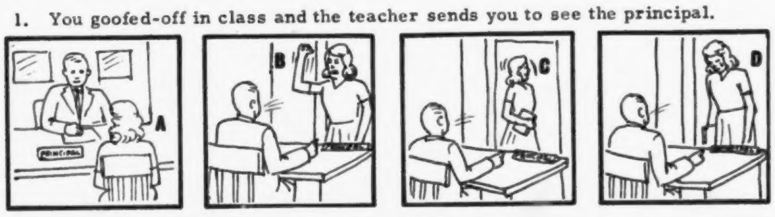
MYSELF

HAPPY ___ ___ ___ ___ ___ SAD
CALM ___ ___ ___ ___ ___ ANGRY
LEADER ___ ___ ___ ___ ___ FOLLOWER
SHARP ___ ___ ___ ___ ___ DULL
BIG ___ ___ ___ ___ ___ LITTLE
FRIENDLY ___ ___ ___ ___ ___ MEAN
PROUD ___ ___ ___ ___ ___ ASHAMED
SURE ___ ___ ___ ___ ___ UNSURE
NOISY ___ ___ ___ ___ ___ QUIET
STRONG ___ ___ ___ ___ ___ WEAK

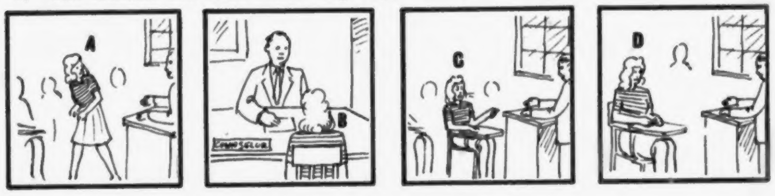
Sample items from the Picture Behavior Test

Pick the girl behaving most like you would, and circle her letter.

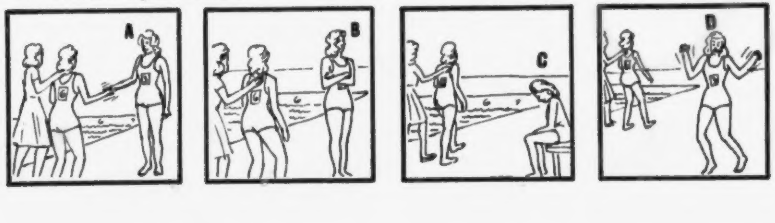
1. You goofed-off in class and the teacher sends you to see the principal.


PRINCIPAL
A
B
C
D

2. The teacher has said something to you that you do not like.

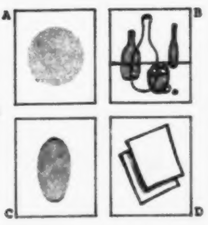

A
COUNSELOR
B
C
D

3. You have just been beaten in a race.

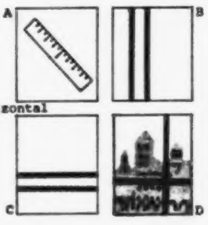


Sample items from the Art Vocabulary Test

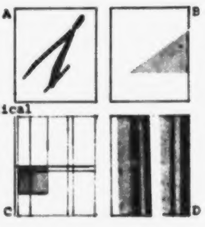
Circle the letter for the picture that means the same as the given word.



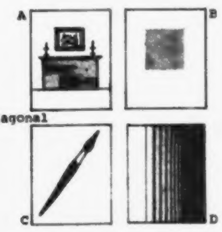
13. oval



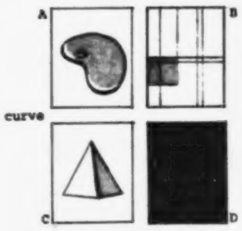
14. horizontal



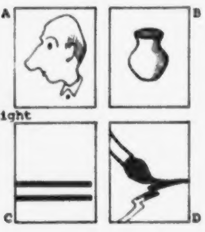
15. vertical



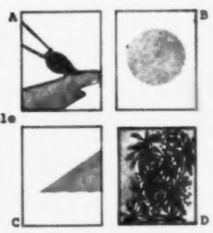
16. diagonal



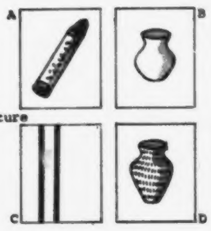
17. curve



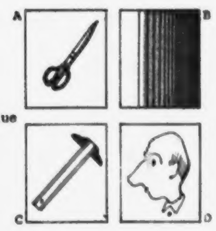
18. straight



19. angle



20. texture



21. value

B2

SCALING KEY USED TO EVALUATE PRE AND POST TEST DRAWINGS OF A MANZANITA BRANCH

Place a check on the response sheet on the line before the statement that best describes your appraisal of the student's drawing. Total the value for each check and indicate the score on the response sheet.

1. Non-Variation/Variation - Lines. Lines can vary in thinness and thickness (narrow to wide lines). In this drawing:

_______ All lines have the same general thickness.

_______ There is one variation in thick and thin qualities.

_______ There are two or more different thicknesses of line.

2. Non-Variation/Variation - Value. Values can vary in intensity (gray to black). In this drawing:

_______ All values have the same general degree of blackness.

_______ There is one variation of black to gray.

_______ There are two or more gray-to-black differences in values.

3. Craftsmanship. Craftsmanship indicates the manner in which materials are employed. This drawing shows:

_______ No craftsmanship (sloppy, smudged-over paper).

_______ Some craftsmanship (crayon used carefully).

_______ Much craftsmanship (crayone used carefully and texture of paper used to create values).

4. Unity. Unity is the extent to which elements and techniques are used to achieve a complete and coherent statement. This drawing shows:

_______ Complete lack of unity, it is disorganized and chaotic.

_______ Moderate amount of unity and organization.

_______ High degree of unity and organization.

5. Quality. Compared to drawings typically produced by seventh grade art students, the quality of this drawing is:

_______ below average.

_______ average.

_______ above average.

B3

QUESTIONNAIRE DISTRIBUTED TO SEVENTH GRADE ART TEACHERS INDICATING AN INTEREST IN PARTICIPATING IN THIS RESEARCH PROGRAM

Name__________________________ Date________________

School____

School Address______________________________________
street city zip code

Mailing Address_____________________________________
street city zip code

School Phone________________ Home Phone________________

PLEASE CHECK THE APPROPRIATE BOX

☐ YES, I wish to participate in your program and attend the Summer Seminar July 24-Sept. 1, 1967.

☐ NO, I cannot attend the Summer Seminar, but I would like to participate in your program; please tell me how.

☐ NO, I do not wish to participate in any way.

- -

PLEASE RESPOND TO THE FOLLOWING AS ACCURATELY AS POSSIBLE:

1. Approximately, what percentage of economically and socially deprived students do you typically have in your seventh grade art classes?

____100% ____75% ____50% ____25% ____Other _____%

2. What is the predominant racial/ethnic make-up of the disadvantaged group you are teaching?

____Anglo-Saxon ____Mexican-American ____Oriental

____Negro Other__________________racial/ethnic group

3. How long have you taught art to disadvantaged seventh graders?

____10 years ____8 ____5 ____3 Other____years

4. What type of teaching credential do you hold?

____General Elementary ____Special Secondary - Art

____General Secondary ____Provisional

Other____

5. How many semester units in art have you taken?

____100 ____75 ____50 ____25 Other____units

6. What do you believe are the major problems in teaching art to disadvantaged learners? Please rank the following statements in order of decreasing difficulty; e.g., 1 worst problem, 6 least difficult problem. If a statement does not represent a problem to you, please do not rank it.

____Very low level of verbal comprehension, which makes communication exceedingly difficult.

____Lack of interest in school and schooling, which results in poor motivation for art activities.

____A very short attention span, which requires providing many short-term projects.

____Lack of interest in art activities because they hold unfortunate cultural stereotypes about art.

____Vast difference between their culture and my own, which makes it difficult to know what is of interest to them.

____Lack of background in the arts, which makes it necessary to provide the most basic and elementary art experiences.

Other problems____

____

7. Please list in order from most successful to least successful, the types of art activities and their related media that you have utilized with disadvantaged learners; e.g., landscape painting out of doors using transparent water colors, or the like.

Most Successful

A.____

B.____

C.____

D.____

Least Successful

B4

SCALE USED BY TWO JUDGES TO EVALUATE THE ADEQUACY OF SEMESTER PLANS PRODUCED BY EXPERIMENTAL AND CONTROL GROUP TEACHERS

Teacher ______________________

Evaluator ______________________

EXPERIMENTAL GROUP TEACHERS

UTILIZATION OF INFORMATION REGARDING THE NEED FOR STUDENTS TO DEVELOP:

	No use	Little use	Some use	Much use	Great use
1. perceptual skills					
2. abilities to deal with abstractions					
3. a clearer and more positive self-image					
4. abilities to use the past to deal with the present					
5. a more constructive use of leisure time					
6. a more positive attitude toward school					
7. an understanding of the differences between order and disorder					
8. attitudes toward art as "important work"					

UTILIZATION OF INFORMATION REGARDING THE STRUCTURE OF ART; THE IMPORTANCE FOR STUDENTS TO:

	No use	Little use	Some use	Much use	Great use
9. learn how to order the visual elements					
10. examine relationships between sensuous properties and ideas and images					
11. understand relationships between forms and their functions					
12. gain control over materials to facilitate imaginative expression					
13. understand the past and present roles of art and artists					

UTILIZATION OF EXPERIMENTAL TEXT THROUGH INDICATING:

	No use	Little use	Some use	Much use	Great use
14. specific pages in the "teaching materials" section of plans					
15. coverage of particular aspects of the text in "activities" section of plans					
16. specific content areas within the text in the "concepts" or "objectives" section of plans					

PRE-CUT MATS UTILIZED AS INDICATED IN:

	No use	Little use	Some use	Much use	Great use
17. "teaching materials" section of the plans					
18. "activities" section of the plans					
19. "objectives" or "concept" sections					

AN INDICATION OF THE UTILIZATION OF THE TWO AND THREE DIMENSIONAL REPRODUCTIONS AS CITED IN:

	No use	Little use	Some use	Much use	Great use
20. the "teaching materials" sections of the plans					
21. their coordination within the "activities" section					
22. their coordination within "concept" or "objective" sections					

EXPERIMENTAL AND CONTROL GROUP TEACHERS

THE FORMAT FOR SEMESTER PLANS WAS CORRECTLY USED AS INDICATED BY:

	No use	Little use	Some use	Much use	Great use
23. designating concepts and objectives clearly					
24. designating teacher and student activities clearly					
25. designating teacher and student materials clearly					

DISTINCTIONS BETWEEN EXPLORATORY AND DEPTH CURRICULA WERE EMPLOYED AS INDICATED BY OBVIOUS DIFFERENCES BETWEEN THE TWO SEMESTER PLANS APPEARING IN:

	No use	Little use	Some use	Much use	Great use
26. "Teaching materials" sections					
27. "Activities" sections					
28. "Objectives" and "concepts" sections					
29. the emphasis upon a variety of projects in the breadth plan					
30. the emphasis upon the examination of concepts associated with the visual arts in the depth plan					

DRAWING UPON YOUR EXPERIENCES IN EXAMINING AND EVALUATING TEACHER MADE PLANS, PLEASE RANK THE ADEQUACY OF THIS TEACHER'S PLANS BASED UPON THE FOLLOWING CRITERIA:

	Unsatisfactory	Poor	Average	Good	Outstanding
31. Knowledge of art reflected in plans					
32. Understanding of students reflected in plans					
33. Sufficiently detailed to guide instruction					
34. Significance of relationship between objectives, activities, and materials					

C1

RANKINGS--FROM NO (0), LITTLE (1), MODERATE (2), CONSIDERABLE (3), TO GREAT (4) IMPACT--REPORTED BY EXPERIMENTAL GROUP TEACHERS OF THE INFORMATION AND MEDIA PROVIDED FOR THEIR USE OVER TWO SEMESTER (USE OF DEPTH PLAN IS INDICATED BY *)

Teacher No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	SUM OF RANKINGS			
Semester	F*S	F S*	F*S	F S*	F S*	F S*	F*S	F S*	F S*	F*S	F*S	F S*	F*S	F S*	After teaching BREADTH	After teaching DEPTH	Both semesters TOTAL	Mean of RANKINGS
Defining new words through class discussions	2 2	1 2	2 3	3 3	2 2	3 3	2 3	3 4	3 3	3 3	3 3	3 1	3 3	3 3	35	33	68	2.4
Writing new words on the board	2 2	2 2	2 3	3 3	2 2	2 3	2 3	1 2	2 2	2 3	2 3	2 1	2 2	3 3	31	28	59	2.1
Students being tested on new vocabulary	1 1	2 1	2 2	3 4	1 2	3 1	2 2	1 2	2 2	2 2	2 3	1 1	3 2	2 3	25	26	51	1.8
Relating vocabulary to concrete situations	2 2	3 2	3 3	3 3	2 2	3 3	2 3	3 4	3 3	3 3	3 3	1 2	3 2	3 3	34	35	69	2.5
Discussing use of "found" objects or making art from scrap	3 3	1 1	3 2	2 3	2 1	1 1	3 4	3 3	2 2	3 3	1 1	3 2	3 2	3 4	30	31	61	2.2
Making projects using materials available in student's environment	2 2	1 2	3 2	2 2	1 1	1 1	2 3	2 3	2 2	2 2	2 1	2 2	3 2	3 3	24	28	52	1.9
Identifying places of visual interest within school neighborhood	2 1	1 1	2 2	1 3	1 2	3 1	0 2	2 3	2 2	2 1	2 2	1 1	3 3	2 2	22	24	46	1.6
Students reporting on places of visual interest in neighborhood	1 1	0 1	2 2	3 2	3 2	2 1	1 1	1 2	2 2	2 2	2 2	1 1	2 2	2 2	22	21	43	1.5
Using reproductions for classroom display	4 3	3 1	4 3	4 4	3 3	3 4	3 4	4 4	3 3	4 3	3 3	3 3	4 3	3 4	42	45	87	3.1
Using reproductions in relation to specific topics of study	2 4	2 3	4 3	4 4	2 4	4 4	3 4	4 4	3 4	4 3	3 2	4 4	4 3	3 4	42	47	89	3.2
Providing detailed information about reproductions used	2 3	2 1	3 2	4 4	2 3	3 2	1 2	3 4	3 2	3 3	2 2	2 1	3 3	3 3	34	32	66	2.4
Using reproductions in relation to students' ethnic background	1 2	2 2	1 1	3 3	2 2	2 2	1 4	1 2	2 2	3 2	1 2	2 1	3 2	3 3	28	25	53	1.9
Using reproductions to help students understand and appreciate art	3 3	3 3	4 3	4 3	3 4	3 3	3 4	4 4	3 3	4 3	2 2	4 2	4 3	4 4	43	43	86	3.1
Using *All About Art* to help students understand art	3 3	2 3	3 2	2 2	2 3	2 3	2 2	3 3	3 3	3 2	2 3	3 3	3 3	4 3	33	36	69	2.5
The semester outlines as helpful in improving teaching	1 1	3 4	3 2	1 2	4 3	2 1	0 1	1 2	2 3	3 3	3 3	3 3	4 4	3 4	31	33	64	2.3
Discussion of "structure of art"	3 4	2 2	3 2	4 3	2 3	2 1	3 1	3 2	3 3	3 3	2 3	3 2	3 3	4 4	36	34	70	2.5
Metfessel's summary on disadvantaged learners	4 3	3 3	1 1	4 3	2 3	4 3	4 3	3 3	3 3	2 2	2 3	4 4	3 3	4 4	39	39	78	2.8
Knowledge of students' backgrounds	4 4	3 3	1 1	4 4	2 3	2 2	3 4	3 3	3 3	2 2	2 3	3 2	4 3	4 4	39	37	76	2.7
TOTALS															590	597	1187	2.4

Teacher No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14				
Semester	F*S	F S*	F*S	F S*	F S*	F S*	F*S	F S*	F S*	F*S	F*S	F S*	F*S	F S*				
The contributions of consultants																		
A	1 1	1 1	0 0	2 2	3 2	0 1	3 3	2 2	1 2	2 1	2 1	1 0	1 1	2 3	18	20	38	1.4
B	4 4	3 3	1 1	3 3	3 3	3 3	2 3	3 4	3 3	3 2	4 4	3 3	3 3	4 4	39	40	79	2.8
C	4 4	2 3	2 1	3 4	2 2	3 2	3 4	4 3	3 3	3 3	3 2	2 1	4 4	1 4	35	38	73	2.6
D	2 2	2 2	2 0	3 3	1 1	0 0	3 4	3 3	2 2	3 3	2 1	0 0	1 2	3 4	24	26	50	1.8
E	3 2	2 1	2 1	2 2	3 2	0 0	3 4	3 3	2 2	3 3	0 0	1 1	3 2	4 4	27	27	54	1.9
F	4 4	4 3	3 2	4 4	4 4	4 3	4 4	4 4	4 4	3 2	4 4	4 4	4 4	4 4	48	48	96	3.4
Information about:																		
Disadvantaged learners	4 3	4 3	2 2	4 4	4 4	3 3	4 4	3 4	3 3	3 3	3 3	4 4	4 3	3 3	41	42	83	3.0
The structure of art	3 4	2 2	4 3	4 4	2 3	0 3	4 3	3 4	3 3	3 2	3 4	4 3	4 4	3 3	35	40	75	2.7
Art curricula:																		
Formulating semester plans	2 1	4 4	3 3	1 2	2 3	3 2	1 2	2 3	3 3	4 4	4 3	4 4	4 4	3 3	33	36	69	2.5
2-D reproductions	4 4	3 3	4 3	4 4	3 2	4 4	4 4	4 4	4 4	4 4	4 3	4 4	3 3	4 4	43	44	87	3.1
3-D reproductions	4 4	3 3	4 3	4 4	3 4	3 3	4 4	4 4	3 3	4 4	3 3	4 2	3 3	3 3	42	42	84	3.0
Experimental text, *All About Art*	4 4	2 3	3 3	3 2	2 3	3 3	4 4	4 4	3 3	4 3	4 4	4 3	3 3	3 3	39	40	79	2.8
Pre-cut mats	2 2	2 3	2 3	4 3	0 1	1 2	4 2	4 4	2 3	4 4	3 2	2 4	2 2	2 3	28	34	62	2.2
TOTALS															452	477	539	2.6